AUGUST
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35¢

AMERICAN Cinematographer

The Magazine of Motion Picture Photography



★ MAKING FILMS TO TRAIN SPACE SHIP PILOTS

★ SHOOTING THE INDIANAPOLIS 500-MILER FOR TV

★ PHOTOGRAPHING AFRICAN WILD GAME FOR "HATARI!"

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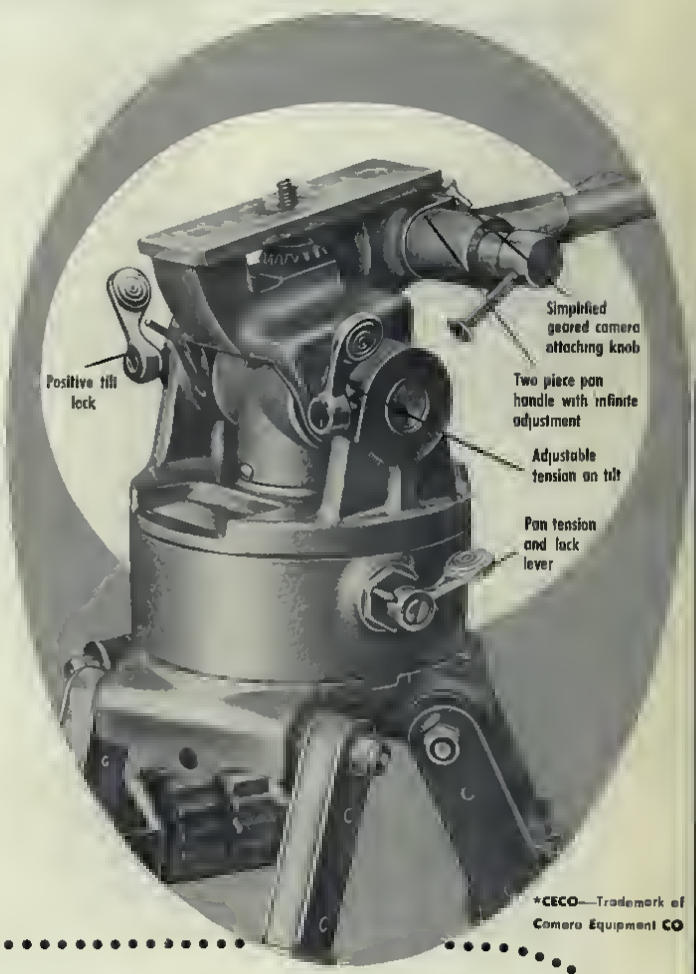
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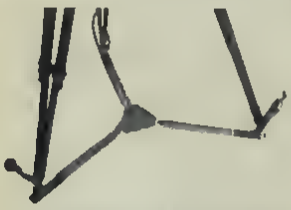
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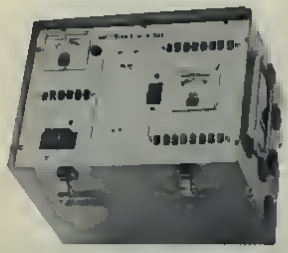


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Cinematographer

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August, 1961 Vol. 42, No. 8

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ON THE COVER

UNSCHEDULED ENCOUNTER with rampaging rhinoceros occurs during filming of scene for "Hatari!" in African wilds. The herding Jeep, veering too close to animal, was badly battered, but without injuring actors Hardy Kruger and Bruce Cabot. Scene was shot from camera car with a 35mm ArriBox and 35mm Mitchell camera under direction of Russell Harlan, ASC.

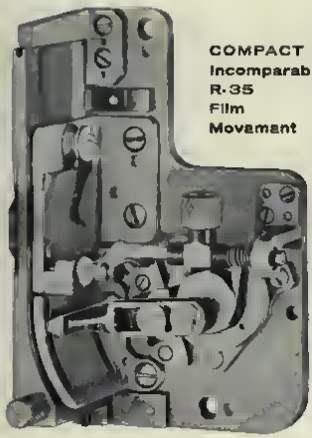
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Hand Held or Tripod Mounted, the new Mitchell R-35 reflex camera uses a new series of Super Baltar matched lenses designed specifically for the R-35 by Bausch & Lomb. For Complete details of the outstanding features of this remarkable 35mm camera, write for the new R-35 Bulletin.

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INDUSTRY NEWS

News briefs of industry activities, products and progress

Recognition For Cinematographers

DECRYING THE paucity of public recognition that has been given Hollywood cinematographers, as constrasted with European countries where top cinematographers are considered and given substantial recognition for their artistic photographic contributions to a motion picture. Ted McCord last month took a significant step aimed to inform the public and particularly film reviewers and critics, of the part played by Hollywood Directors of Photography in the production of motion pictures.



Ted McCord, ASC

In an exclusive interview for *Daily Variety*, Hollywood industry trade paper, McCord indicated the industry itself should be the first to acclaim its cameramen and to consider their contribution to a picture equally important as that of others involved in the creative phase of a production.

Discussing the subject further at the ASC clubhouse in Hollywood, McCord pointed out that in the demanding world of international art, still photography long ago achieved status as a major art form. "The great photographic pioneers, Daguerre, Mathew Brady and George Eastman set standards of excellence that subsequently have been equalled or surpassed by such modern-day masters as Steichen, Man Ray and Cartier-Bresson."

Today, both the critics and the public are recognizing more and more the newer and perhaps even greater art form — the motion picture — McCord continued.

"In the past eighteen months, the man-behind-the-camera in Europe has emerged the industry's newest star. There is not a recognized critic in France, Germany or Sweden, for example, who does not single out for deserved praise the cinematographic contribution of cameraman Gunnar Fischer in the productions of Ingmar Bergman. In Italy, the national press at all levels extolls the accomplishments of Otello Martelli who photographed so imaginatively the sensational "La Dolce Vita." In Japan, that government has given special recognition to cinematographer Kazuo Miyagawa for the unforgettable imagery of "Rasho mon.

"Here in America we tend to take for granted our artistic 'greats.' In the Academy Awards the virtuosity of the cinematographer is invariably eclipsed by the stars of the picture. We have come to accept as a matter of course the photographic artistry of such cinematographers as the late Gregg Toland —although the photographic triumph of "Citizen Kane" has immortalized him in spite of our neglect.

"It is a sad commentary that we in America have scarcely noted in passing the luminous genius of cameraman and film-maker Robert Flaherty although, now, at long last, it may be said that we are awakening to the brilliance of the camera work of Charles Lang, Jr.

"It is to our industry's credit, however, that we have begun to appreciate the new excitement of Jack Cardiff's work and that we are gradually recognizing the accomplishments of Robert Surtees, Harry Stradling, Leon Shamroy and others," McCord concluded.

With almost everybody today a camera user and appreciative of photographic quality, there is a growing public awareness of the man who photographs a motion picture which eventually will create a "following" for those whose pictures demonstrate true artistry, McCord believes. As David O. Selznick summed it up in his Golden Laurel Award speech, "The international public may well have awakened a genuine Renaissance by bestowing its recognition upon this gifted group of cinema artists."

* * *

SPIE Technical Symposium

Some 2,000 specialists in photographic and photo-optical instrumentation will take part in the technical meetings, seminars and conferences scheduled to be held under the auspices of the Society of Photographic Instrumentation Engineers' Sixth Annual Symposium at the Los Angeles Ambassador Hotel, August 7 to 11.

Continued on Page 498



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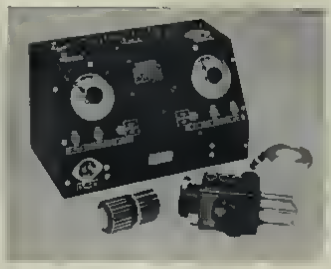


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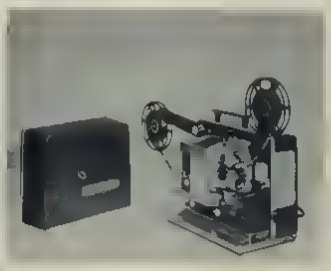
WHAT'S NEW

IN EQUIPMENT, ACCESSORIES, SERVICES



Arri Intervalometers

Available for immediate delivery in four standard models is new Master Intervalometer for use with either 16mm or 35mm Arriflex cameras. This programming and control instrument operates camera's single-frame drive, lights, and related equipment in making time-lapse motion pictures. Framing rates range from 1 sec. to 25 min. Automatic exposure times of 1/10, 3/10, or 9/10 sec., or ¼ or ½ sec. are obtainable when the standard single-frame drive is used. Special drives permit other exposure times. Equipment will control light volumes up to 1500 watts. Arriflex Corp. of America, 257 Park Ave., South, New York 10, N. Y.



New Filmosound

Lighter and brighter is Bell & Howell's new model 535 Filmsound Specialist 16mm sound projector. It's 25% lighter in weight and a Super Proval 2-in. f/1.6 lens intensifies brightness substantially over that of previous models. There's a control for both sound volume and tone, and a five-position knob simplifies control of all operations. Featuring permanent lubrication, gear-driven tilt, list price is under $600.00.



Grovarlite Sanior

A new, improved model of the GroverLite Senior is announced by Natural Lighting Corp., 630 So. Flower, Burbank, Calif. Unit accommodates five lamps, such as PAR, etc. Switches provide for burning 2, 3 or all five lamps at one time. Another new feature is that unit accommodates the company's new M-6 Colorflector (shown in use in photo), permitting use of any type standard light bulbs. Size is 14"x14"x 8", weight is 12 lbs. Price, without lamps or Miroflectors but including barndoors, diffusion slot, and 15-ft. cord is $48.75.



Lowel-lite Improved

The popular tape-on, clamp-on Lowel-Light now has a wider base plate for greater stability when Gaffer-tape mounted, a larger notch for clamping unit on pipes, new ¼-in. holes for mounting with nails or screws, and a more convenient handle for directional control. Single units, as pictured (minus lamp) are $6.95. A five unit package with case sells for $34.50. Lowel-Light Photo Engineering, 429 West 54th St., New York 19, N. Y.

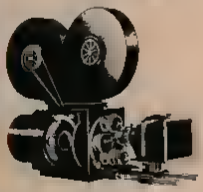
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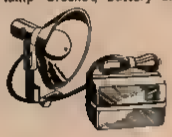
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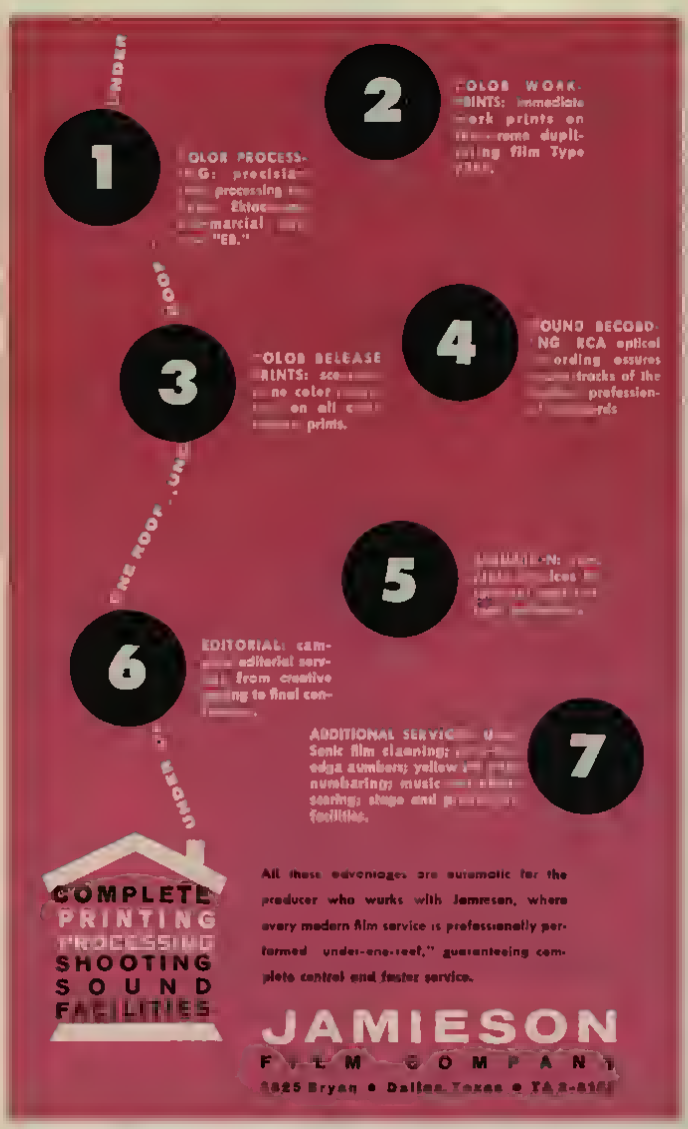
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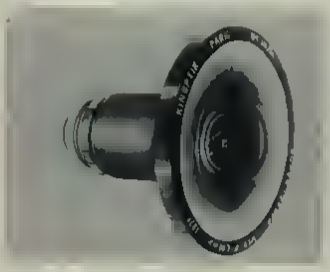
WHAT'S NEW

Continued from Page 452



Two-way Radio

Ideally suited for film production communication problems is new, powerful portable two-way shortwave radio announced by General Electric Co. Tradenamed the Voice Commander, it has one-watt transmitter and receiver in a single case 9½-in. high, 5-in. wide, and 1½-in deep. Weight is just over four pounds. Unit also has built-in telescoping antenna, and an adequate well-baffled speaker. General Electric Communication Products Dept., P.O. Box 4197, Lynchburg, Va.



Supar Wide-angle Lens

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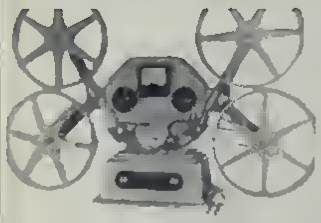
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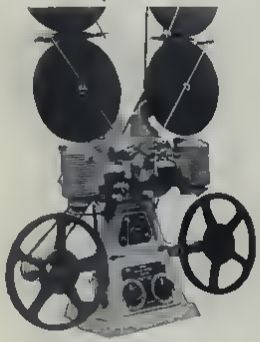
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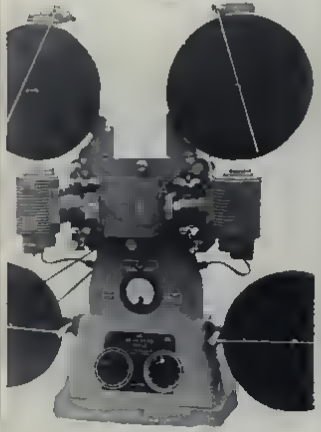
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BEHIND THE CAMERAS

WHAT THE INDUSTRY'S CAMERAMEN WERE SHOOTING LAST MONTH

By MARION HUTCHINS

ALLIED ARTISTS

ROBERT KRASKER, "Bill Budd" (C'Scope, Anglo-Allied Prod., shooting in Spain & England) with Robert Ryan and Peter Ustinov, Peter Ustinov, producer-director

CARL GUTHRIE, ASC, "The George Reft Story" with Ray Danton and Jayne Mansfield. Joe Newman, director.

CASCADE STUDIO

ROY SEAWRIGHT, Commercials*

HENRY SHARP, ASC Commercials*.

GEORGE FOLSEY, ASC, Commercials*.

COLUMBIA STUDIOS

HARRY STRADLING, ASC, "Five Finger Exercise" (Sonnis Corp.) with Rosalind Russell and Jack Hawkins. Daniel Mann, director.



JOSEPH LaSHELLE, ASC

MGM elected him last month to direct the photography of a segment of "How the West Was Won," studio's initial Cinerama production.

BOB HUKE, "Reach for Glory" (John Kohn Jud Kinberg Prod., shooting in England) with Harry Andrews and Kay Walsh.

ARTHUR GRANT, "The Pirates of Blood River" (Megascope & Eastman Color Hammer Film Prods., shooting in England) with Kerwin Mathews and Glenn Corbett. John Gilling, director.

PHILIP TANNURA, ASC, "Shannon"*

FRED GATELY, ASC, IRVING LIPPMAN, "The Hathaways"*

FRED GATELY, ASC, "Hazel"*.

IRVING LIPPMAN, CHARLES WELBORN, "Dennis the Menace"*

FRED YOUNG, "Lawrence of Arabia" (Super Panavision 70 & Technicolor, Horizon-American Prods.; shooting in Jordan) with Peter O'Toole. David Lean, director.

CHARLES WELBORN, "The Three Stooges Meet Hercules" with the Three Stooges and Vicki Trickett. Edwards Bernd, director.

GERT ANDERSEN, ASC, "Donna Reed Show"*

GUISSEPPE ROTUNNO, "The Best of Enemies" (Dino de Laurentiis Prods., shooting in Israel) with David Niven and Albert Sordi. Guy Hamilton, director.

ALDO TONTI, "Barabas" (Technirama 70 & Technicolor. Dino De Laurentis Prods., shooting in Italy) with Anthony Quinn and Silvano Mangano. Richard Fleischer, director.

JOE MACDONALD, ASC, "Walk on the Wild Side" (Famous Artists Prods.) with Laurence Harvey and Capucine. Edward Dmytryk, director.

JOE BIROC, ASC, "Sail a Crooked Ship" (Philip Barry Prods.) with Robert Wagner and Dolores Hart. Irving Brecher, director.

ANTHONY HELLER, "On the Brink" (Hammer Film Prods., shooting in London) with Macdonald Carey and Shirley Ann Field. Joe Losey, director.

ARTHUR ARLING, ASC, "Notorious Landlady" (Kohlmar Quine Prod.) with Kim Novak and Jack Lemmon. Richard Quine, director.

OESILU—Cahuenga Studios

ROBERT DE GRASSE, ASC, Dick VanDyke Show"*

SID HICKOX, ASC, "The Andy Griffith Show"*

OESILU—Gower Studios

WILLIAM SKALL, ASC, "Robert Young Show"*.

CHARLES VAN ENGER, ASC, "Lassie"*

TED VOIGHTLANDER, "Ben Casey"*.

ROBERT PLANCK, ASC, "My Three Sons"*

FAIRBANKS STUDIOS

RAY FOSTER, ASC, Commercials*

FOX WESTERN AVENUE

JAMES VAN TREES, ASC, "Dobbie Gillis"*

FILMWAYS STUDIOS—New York

MORRIS HARTZBAND, "The Defenders"* (CBS) Boris Sagal and Buzz Kulick, directors

GENERAL SERVICE STUDIOS

THOMAS TUTWILER, ASC, Commercials*, "International Golf Show"*

INDEPENDENT

GILBERT WARRENTON, ASC, "The Clown and the Kid" (Harvard-UA) with John Lupton and Mike McGreedy. Edw. L. Cahn, director.

GORDON AVIL, ASC, "Deadly Duo" (Harvard UA) with Craig Hill and Marcia Henderson. Robert Kent, director. "Wild Harvest" (shooting in Homestead, Fla.) with Dean Fredericks and Kathleen Freeman. Jerry Baerwitz, director.



RUSSELL METTY, ASC

1940 Oscar winner for color photography is currently shooting "Touch of Mink" starring Doris Day and Cary Grant at Revue-Universal Studios.

ERNEST CAPARROS, "The Miracle Worker" (Playfilms, Inc. for UA) with Anne Bancroft and Patti Duke. Arthur Penn, director.

DANIEL FAPP, ASC, "One, Two, Three" (P Vision, Pyramid Prod., A. G. Mirisch Co. for UA, shooting in Berlin) with James Cagney and Horst Buchholz. Billy Wilder, producer-director.

Continued on Page 458





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BEHIND THE CAMERAS

Continued from Page 456

INDEPENDENT

EMMANUEL ROJAS, "Out of the Tiger's Mouth" (Shooting in Hong Kong; Ruggles Whelan Enterprises for Sutton Prods.) with Han Yi Tim Whelan, Jr., director

LEO TOVER, ASC, What a Wonderful Life" (Mirisch UA, shooting in Florida) with Elvis Presley and Arthur O'Connell, Gordon Douglas, director

PHILIP LATHROP, ASC, "The Last Hero" (Joel Prod P'vision) with Kirk Douglas and Gena Rowlands. David Miller, director

FRED WEST, ASC, (Shooting in Nashville, Tenn.) Methodist Church Films.

FRANK PLANER, ASC, "Infamous" (Wm Wyler Prod—Mirisch Co., UA release) with Audrey Hepburn, Shirley MacLaine and James Garner William Wyler, producer director

WINTON HOCH, ASC, "Soldiers 3" (Essex prods. for UA; shooting in Kanab, Utah) with Frank Sinatra and Dean Martin John Sturges, director

TED MCCORD, ASC, "The Land We Love" (Daystar Prod'n, UA release, P'Vision & Color, shooting at Catalina) with James Mason and Kate Manx Leslie Stevens, producer-director

RICARDO TORRE, "The Magic Fountain" (C Scope & Eastman color, shooting in Madrid) with Fernando Lamas and Esther Williams. Fernando Lamas, director

ROBERT BRONNER, ASC, "Pocketful of Miracles" (P'Vision & Consolidated color, Franton Prods. for UA) with Glenn Ford, Bette Davis and Hope Lange Frank Capra, director

KTTV STUDIOS

GILBERT WARRENTON, ASC, "Saintly Sinners" (Harvard Films, UA release) with Stanley Clements and Don Beddoe Jean Yarbrough, director

METRO-GOLDWYN-MAYER

MILTON KRASNER, ASC, "Sweet Bird of Youth" (Pandro S Berman Prod.) with Paul Newman and Geraldine Page Richard Brooks, director

LUCIEN ANDRIOT, ASC, "National Velvet"*

HARKNESS SMITH, "Dr Kildare"*

WILLIAM SPENCER, "Cain's Hundred"*

JOHN NICKOLAUS, "Rawhide"*

GEORGE CLEMENS, ASC, "Twilight Zone"*

HAL MOHR, ASC, "Father of the Bride"*

JOSEPH LA SHELLE ASC & CHARLES LANG, ASC, "How the West was Won" (Cinerama, color, shooting in Paducah, Ky.) with James Stewart and Debbie Reynolds. Henry Hathaway, director

ROBERT SURTEES, ASC, "Mutiny on the Bounty" (Ultra Panavision & Color; shooting in Tahiti; Arcola Prods.) with Marlan Brando and Trevor Howard. Lewis Milestone, director.

JOSEPH RUTTENBERG, ASC, "Bachelor in Paradise" (C'Scope & Color; Ted Richmond Prods.) with Bob Hope and Lana Turner, Jack Arnold, director.

PARAMOUNT STUDIOS

ELLSWORTH FREDERICKS, ASC, "Escape From Zahrain" (P'Vision & Technicolor) with Yul Brynner and Sal Mineo. Ronald Neame, director

Continued on Page 460

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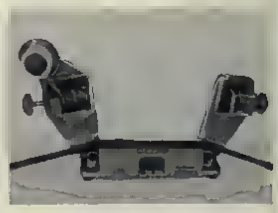
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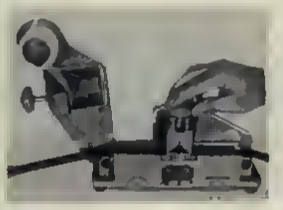
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BEHIND THE CAMERAS

Continued from Page 458

TWENTIETH CENTURY-FOX

JEAN BOURGOIN, "Gigot" (Eastman color, Seven Arts Prod.; shooting in Paris) with Jackie Gleason and Katherine Kath. Gene Kelly, director.

ARTHUR IBBETSON, "The Inspector" (Red Lion Films, shooting in London) with Stephen Boyd and Dolores Hart. Philip Dunne, director.

WILLIAM CLOTHIER, "The Comancheros" with John Wayne and Stuart Whitman. Michael Curtiz, director

OZZIE MORRIS, "Satan Never Sleeps" (Leo McCarey Prod.; shooting in England) with William Holden and Clifton Webb. Leo McCarey, producer-director

ROBERT HAUSER, "Bus Stop"*

KENNETH PEACH, ASC, "Follow the Sun"*

RICHARD RAWLINGS, "Margie"*

FLOYD CROSBY, ASC, "7 Women from Hell" (API; C'Scope, shooting in Hawaii) with Patricia Owens and Margie Dean. Robert Webb, director.

LLOYD AHERN, ASC, "Adventures in Paradise"*

LEON SHAMROY, ASC, "Tender is the Night" (C'Scope & DeLuxe color; shooting in France) with Jennifer Jones and Jason Robards, Jr. Henry King, director.

WALT DISNEY STUDIOS

EDWARD COLEMAN, ASC, "Big Red" with Walter Pidgeon and Gilles Payant. Norman Tokar, director

WILLIAM SNYDER, ASC, "Moon Pilot" with Tom Tryon and Brian Keith. James Neilson, director.

WARNER BROS.

FRANK CARSON, "Room for one More"*

BURT GLENNON, "Lawman"*

JACK MARQUETTE, GLEN MACWILLIAMS, ASC, RALPH WOOLSEY, ASC, "77 Sunset Strip"*

HAROLD STINE, ASC, RAY FERNSTROM, ASC, "Roaring Twenties"*

ROBERT HOFFMAN, GLEN MACWILLIAMS ASC, LEWIS JENNINGS, "Surfside 6"*

ROBERT TOBEY, ASC, RALPH WOOLSEY, ASC, "Maverick"*

LEWIS JENNINGS, BURT GLENNON, "Cheyenne"*

PEVERELL MARLEY, ASC, JACK MARQUETTE, "Bronco"*

ROBERT TOBEY, ASC, CARL GUTHRIE, ASC, HAROLD STINE, ASC, "Hawaiian Eye"*

JAMES DROUGHT, Commercials*

ROBERT BURKS, ASC, "The Music Man" (Technirama & Technicolor) with Robert Preston and Shirley Jones. Morton DaCosta, producer-director

ZIV-UNITED ARTISTS

BRICK MARQUARD, "Sea Hunt"*

MONROE ASKINS, "Rip Cord"*

CURT FETTERS, "King of Diamonds"*

WILLIAM MARGULIES, ASC, "Outlaws"*.

WALTER CASTLE, ASC, HASKELL BOGGS, "Bonanza"*

HAROLD LIPSTEIN, ASC, "Hell is for Heroes" with Steve McQueen and Bobby Darin. Don Siegel, director

PARAMOUNT SUNSET STUDIOS

FLEET SOUTHCOTT, "Gunsmoke"*

REPUBLIC STUDIOS

CHARLES BURKE, "The Corruptors"*

HOWARD SCHWARTZ, "The Rifleman"*.

EDWARD FITZGERALD, ASC, "Brushfire!" (Obelisk Prod.) with John Ireland and Everett Sloane. Jack Warner, Jr., producer-director

ERNEST HALLER, ASC, "Married Too Young" (Headliner Prod.) with Harold Lloyd Jr. and Jana Lund. George Maskov, director.

WILFRID CLINE, ASC, "Robert Taylor Detectives"*

GEORGE DISKANT, ASC, "Dick Powell's Zane Grey Theatre"*.

PAUL IVANO, "The Nun and the Sergeant" (Eastern Film Prod., UA release) with Robert Webber and Anna Sten. Franklin Adreon, director

HOWARD SCHWARTZ, "The Case of Patty Smith" (Impact Prod.) with J. Edward McKinley and Joe Conley. Leo H. Handel, producer-director.

REVUE STUDIOS

RUSSELL HARLAN, ASC, "The Spiral Road" (Shooting in Dutch Guiana) with Rock Hudson and Genea Rowlands. Robert Mulligan, director.

RUSSELL METTY, ASC, "Touch of Mink" (P'Vision & Color, Granley Prods.) with Cary Grant and Doris Day. Delbert Mann, director.

JOHN RUSSELL, ASC, ELLIS THACKERY, ASC, "87th Precinct"*.

Continued on Page 502

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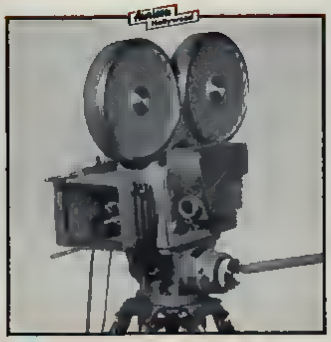
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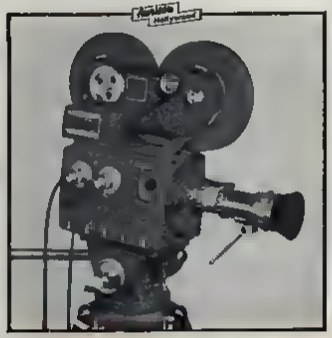
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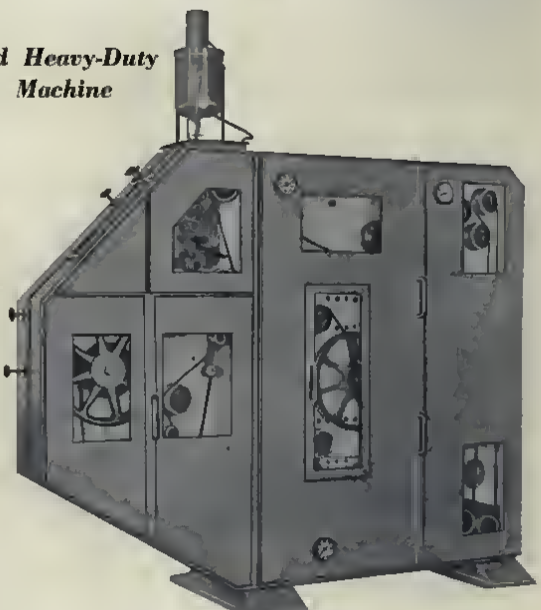
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News briefs about the A.S.C., its members, and important industry personalities



CHARLES WICK, executive producer for Chemlard Productions, Hollywood, was guest speaker at the American Society of Cinematographer's monthly dinner in June Attentive listeners are from left Charles G Clarke, Douglas Shearer, Sol Halprin, ASC Prexy William Daniels, and Morris Weiner of Universal Studios



EMERY NUSE retired Eastman Kodak executive and former technical advisor to the American Cinematographer magazine, died July 7 in Los Angeles following a long illness He had been manager of the west coast offices of E-K's motion picture film division, and was an associate member of the ASC

ARTHUR ARLING ASC has been signed by producer Martin Ransohoff to direct the photography of "Ray's Night Out," joint venture of Ransohoff's Filmways Production and Kim Novak's Kimco Productions Arling recently completed shooting "Notorious Landlady" with Kim Novak



★

JOSEPH BIROC, ASC, will direct the photography of Allied Artist's "Hitler" and will be assisted by Andy McIntyre, Bob Rhen, and Terry Meade Biroc recently completed "Sail A Crooked Ship," for Columbia, which stars Bob Wagner and Dolores Hart



MANUAL BERENGUER, Spanish cinematographer who has done collaborative photography on such productions as "King of Kings," "Pride and the Passion," "El Cid," and "Around the World in 80 Days," has been elected to membership in the American Society of Cinematographers Berenguer began his cinematography career as a correspondent cameraman for Fox Movietone News in 1939 He graduated from assistant cameraman to a full-fledged Director of Photography in short space of three months Since then he has photographed 81 feature films, mostly in Spain and has received numerous European awards for his cinematography

★



PIERO PORTALUPI who distinguished himself directing the photography of the remarkable aerial race in MGM's "Ben Hur," was a recent visitor in Hollywood and at the clubhouse of the American Society of Cinematographers Portalupi is a member of the IAC, Italy's society of cinematographers similar to Hollywood's ASC.



EDWARD DUPAR, ASC, (right) whose name has graced the credits as Director of Photography of more "Hawaiian Eye" TV films than any other cinematographer at Warner Brothers, died suddenly from a heart attack June 3 DuPar is credited with being the cameraman who shot the industry's first talking picture It was for Warner Brothers



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AT THE ASC's June meeting, Walter Beyer demonstrated revolutionary new projector that uses cartridge film loads

Projector of Future?

A completely new idea in film projection promises to revolutionize and greatly expand the use of motion pictures in many fields now receiving only a small percentage of the potential benefits. Very soon it will be possible to project 35mm, 16mm or 8mm motion pictures with projectors of simplified design and with the film in sealed cartridges that rewind the film as it is projected.

The projector, developed by Cordova, Inc, Hollywood, was demonstrated to members of the American Society of Cinematographers recently by Walter Beyer, recently-appointed Chairman of the ASC's Research and Educational Committee.

The custom-built prototype apparatus was derived from an original experimental one constructed three years ago during Beyer's association with the now disbanded Motion Picture Research Council.

It consists primarily of a home movie type projection mechanism modified to accommodate a magazine-type cartridge containing enough film for a two-hour show. Films of lesser lengths may also be accommodated The cartridge is completely sealed except for apertures for the picture and soundtrack contact with the projector.

According to Beyer, use of the magazine eliminates need for threading film in the projector, also eliminates entirely the possibility of film damage that invariably results from rewinding and other handling where film is projected from conventional reels.

The film used in the Cordova cartridge demonstrated is different from the conventional 35mm in that the images (in two parallel rows) are printed down to 16mm size then, by means of a second print-down, to a size about midway between that for 8mm and 16mm. The sprocket holes are in the center of the film.

★

Role of Photo Instrumentation

Supersensitive films have opened the door to almost universal use of photographic instrumentation for intricate research under difficult conditions. Fast films, although not a prerequisite for high-speed photography, do in many instances enable the photo technician to speed up the taking rate of his camera.

With new needs and uses for high speed films constantly being uncovered, it is possible to find current examples in almost every area of importance to the free world, according to a recent bulletin of the Society of Photographic Instrumentation Engineers.

High speed techniques are playing an important role in science's efforts to probe outer space. Every important space satellite launched by the United States has carried at least one camera, sometimes utilizing infra red film, to record atmospheric conditions in outer space. Scientists use these film records to plan future flights that will best be adaptable to the atmospheric conditions of outer space. High speed motion pictures have also been used to "slow down" on film, for example, the separation of a nose cone. No less important is ability of instrumentation to provide surveillance over possible aggressors. ■

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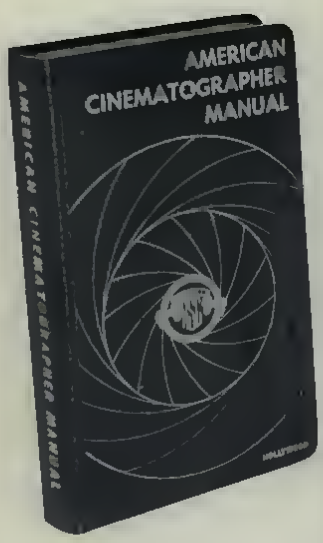
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Q & A — Technical Questions and Answers

Q.—*I have a Norwood Super Director exposure meter which doesn't always give correct readings when used in sub-Arctic regions However, when I use the same meter 650 miles to the south, I get true readings. Could the incorrect readings be due to the magnetic influence of the Arctic region?—K W., Manitoba, Canada*

A.—Although you do not state whether the meter was used as an incident light meter or for measuring reflected light in the Arctic region, Don Norwood, designer of the meter, states that if it was used as a reflected light meter, the difficulty could have been due to over-readings caused by white snow backgrounds Here, the meter should be used to measure the incident instead of reflected light

Now if the meter was used for incident light measurement at the time of the difficulty described. Mr. Norwood advises that other causes of the trouble should be sought, adding that when any photo-electric exposure meter is used in an unusually cold and dry atmosphere, a possible cause of erroneous readings is static electricity. This, he adds. may form in spots on the plastic face of the meter (due to friction) and thus exert a direct attraction or repulsion on the meter's sensitive pointer.

Here the remedy is to use a liquid anti-static preparation on the face of the meter which will neutralize any static charge. Two commercial preparations for this purpose are *Weston Statnul*, manufactured by Daystrom, Inc., Weston Instrument Div , Newark 12, New Jesey; and *Donna Lite*, obtainable from Atkinson Enterprises, 6020 E. Gage Avenue, Bell, Calif.

Q.—*We have 2,600 feet of Ferrania Type-54 color negative that we purchased on a recent trip to Italy. We had the film processed there before returning to the U.S. but had no prints made. Now we are told it is impossible to get color prints made of the Ferrania negative in this county We sent the film back to Italy to have it printed but found that government regulations were so difficult to meet, that we have requested the negative be returned to us.—H L.S., Tacona, Wash*

A.—We have discussed your problem with Technicolor Corporation in Hollywood and they advise that if your Ferrania negative is 35mm they can undoubtedly make prints for you If it is 16mm. there is some question as to whether Technicolor can handle it. It is suggested that you write to Technicolor Corporation, 6311 Romaine, Hollywood 38, directing your letter to Mr. Fred Detmers Be sure to send along a sample of the processed color negative (a six- or eight inch length will do).

•

Need professional advice on a picture-making problem? Reader's questions will be answered by mail when accompanied by stamped envelope for reply. Questions and answers considered of general interest to other readers will be published here. Write "Question & Answer Editor," American Cinematographer, P.O. Box 2230, Hollywood 28, Calif.

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FOLLOWING John Wayne's successful roping of a rhino, the rampaging animal succeeds in eluding the noose, then turns on his copters.



SLIPPING FREE of the rope, the rhino decides to charge the Jeeps carrying Wayne and others



VIEW FROM camera car as rhino attempts to overturn hunter's car Wayne, with noose stands ready to capture animal.

ON SAFARI WITH "HATARI"

To capture action scenes of John Wayne lassoing African Wild game for Howard Hawks' "Hatari!" a specially armored camera car, 42 four-wheel-drive Jeeps, and more than 20 cameras were involved.

By RUSSELL HARLAN, ASC

AFTER SIX MONTHS in East Africa on location with Howard Hawks' "Hatari!", starring John Wayne, we returned to Hollywood and held special showings of the animal catching sequences filmed in Tanganyika.

Cinematographer Hal Rosson, no stranger to these pages, saw our footage and at the subsequent sidewalk conference professed complete disbelief. He told Hawks emphatically he did not believe what he had seen; that Hawks must have invented some new "process." And that if what he had seen on the screen was true, then Hawks, Wayne and the rest of us must have been completely mad to have attempted it.

Thank you for those kind words, Mr. Rosson.

It makes all the effort worth while.

Briefly, "Hatari!" a Paramount release, covers the pursuit and capture of wild game for sale to zoos. Game is caught professionally by chasing them in cars and trucks over unbelieveably rough terrain, dried lake beds, rocks, waist-high grass and bush, where hidden obstacles can at any moment overturn truck or car. Photographing such chases called for special equipment, for these were nothing like the "Western" chases that are shot daily on the smooth insert roads at Iverson's Ranch, near Hollywood.

Our catching truck had a metal seat mounted over a front fender. The catcher, John Wayne, was strapped in with a safety belt. From this exposed and precarious position he roped the game by noose or lariat. (Among other achievements above and beyond the actor's call of duty, Wayne roped and caught a giraffe, zebra and wildebeeste.)

To overtake the speedy and elusive game, it was often necessary to travel up to 65 miles per hour in order to "cut out" the desired animal. Photographing this action from the camera car, at the long end, as it were, of a whiplash, called for speeds up to 75 mph.

Howard Hawks, a rabid auto enthusiast who once drove racing cars as a hobby and a man with no apparent interest in longevity, designed our camera car. A standard passenger car chassis was stripped to the wheels, given new springing and special load-levelers, and fitted with an all-aluminum body. Roughly, it was little more than a traveling platform. The most powerful Detroit engine was installed, plus a steering gear which could be switched in a matter of minutes from left to right. Five cameras could be mounted on it—two operated conventionally, the other three by remote control, as weight was a vital factor. I vividly recall one occasion while pursuing giraffe, when we swerved violently. The right rear tire disappeared, or so it seemed, turned in and under by the pressure and weight. It was completely out of sight, as though we were running on the rim. Game dart, twist, swerve, some of them reversing their field on the proverbial dime

Continued on Next Page



EARLY MORNING start for location shooting on the salt flats of Lake Manyara. The heavily armored camera car bearing the Mitchell camera is followed by vehicles that will take part in action scenes, also supply vehicles for the filming safari



JOHN WAYNE with pole and lassa rides front of catcher car during a giraffe chase, while action is filmed by Horton from camera car in background.



TEAM WORK between herding Jeep and catching car is shown in this closeup of action made from camera car. Wayne, with lassa, makes ready to capture animal



PLANNING THE ACTION—Strategy for upcoming action sequence is discussed by (from left) John Wayne, camera assistant Danny McCauley, director Howard Hawks, and cinematographer Russell Harlan. Camera car is modified Chevrolet chassis equipped with powerful motor and fitted with heavy aluminum guard plates



RUSSELL HARLAN, ASC
The author, who spent six months in Tanganyika, Africa, shooting animal catching sequences for Howard Hawks' 'Hatari."

—or sixpence, as they say in British East Africa.

On occasion we mounted cameras (we had with us a total of 22, including seven Arriflex) on the sides, rear and front bumper. A similar practice was followed in the case of the catch car, resulting in startling shots of game charging head-on. The catch car cameras were remote-controlled by the driver, whom I cued by radio from the camera car. Additionally, we had 42 four-wheel-drive Jeeps, all equipped with two-way radio.

When the script called for chasing and photographing larger game (rhino and buffalo), we installed two-inch bars around the camera car. This, I'm convinced, was purely a "mental" protection, as any rampaging rhino or buffalo could readily have crashed through.

We shot most of the scenes while traveling between 35 and 45 miles per hour, but when pursuing the wildebeeste, cheetah and giraffe, we traveled considerably faster. Wildebeeste (that's our old friend the "gnu" of crossword puzzle fame) make a Western quarter horse seem muscle-bound. At 40 mph they can suddenly stop, reverse, or cut away at a 90 degree angle. Moreover, they can run all day. Regular game catchers let them run until tired, but for motion picture purposes we wanted fast action—and we had no wired off areas. Our Lake Manyara "set," for example, stretched 52 miles one way, 19 across, and how do you wire off *that?* It's the only set I ever saw where you could drive 100 miles before lunch and still be on the same set.

Charging headlong after the game, bouncing over bumps, holes, logs, and ant hills that were everywhere with the consistency of pill-boxes, we found that the film magazines tended to snap off, despite the use of shock cords.

After numerous experiments in which we mounted them on rubber, or on air tripods patterned after the air cushions used by cross-country truck drivers, we devised metal hangers. Holes were bored in the

Continued on Page 488



TO CAPTURE scenes like this, camera was often mounted on the catching car to get over-the-shoulder shots of Wayne in pursuit of game. Here car approaches a trio of zebras, one of which Wayne lasses and captures for a scene for "Hatari."



WHEN RAINS and the Laos situation suddenly put an end to shooting "Marines, Let's Go!" in Japan, the company moved to Okinawa to shoot the battle sequences. Here, cinematographer Lucien Ballard (2nd from right, behind camera) and director Raoul Walsh (far right) look on while the 20th Century-Fox CinemaScope camera is readied for an upcoming take.

ASSIGNMENT IN JAPAN

The problems were little different than those we would have encountered had we shot "Marines, Let's Go!" in Hollywood, says Lucien Ballard, ASC.

By CLIFFORD V. HARRINGTON

"MARINES, LET'S GO!" proved to be a test of professional skill for Lucien Ballard, ASC. A hurried plane ride across the Pacific Ocean and the civil war in Laos were two incidents which served to make the 20th Century-Fox assignment an unusual one.

Ballard was called to the production at virtually the last minute to take over the photographic chores from Charles G. Clarke, ASC, who had been taken suddenly ill in Japan two days before the cameras were scheduled to turn on the first shot.

Like other top professionals, Ballard has learned to take the unexpected in his stride. As a result, he managed to find some time to scan the script on the plane to Tokyo. He had expected to give it further study on his first day or two in Japan. Instead, he began shooting scant hours after his arrival.

At midnight when his plane landed at Tokyo International Airport, studio representatives hustled him to another plane heading south. At the Osaka airport he was met by a sedan and rushed to Kyoto. Here, after a brief script conference with Raoul Walsh, the film's director and producer, he started work at 7 A.M.

From that moment the company moved in high gear, until bad weather halted all outdoor location filming.

Director Walsh has a reputation for bringing pictures in ahead of schedule. In a recent interview with Tokyo writer Dave Jampel, Walsh was asked if he had ever made an arty film. "No," he replied, "I had to keep working." He further commented on his theories of film making by saying, "Fundamentally the thing is a motion picture, so let's keep it moving." It is understandable, then, that Walsh maintains a fast pace when shooting.

"Marines, Let's Go!" is a fast-moving story of the escapades of members of a combat unit on leave in Japan during the Korean War. The picture is best described in Walsh's own words as "a comedy with a few deaths." Except for some battle scenes shot on Okinawa, it was filmed entirely in Japan.

In filming this production Walsh had to rely heavily on the years of experience of cinematographer Ballard and the other members of

Continued on Page 489



BALLARD (left, and director Walsh discuss a new set up on location on slopes of Mt. Fuji, Japan. Weather there was clear and cold, but never hampered operations.

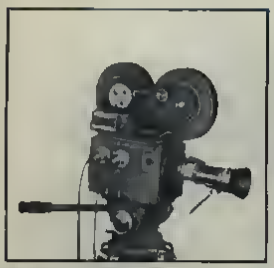
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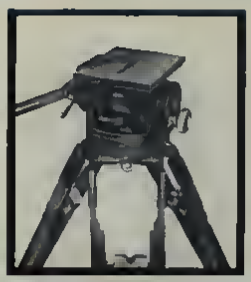


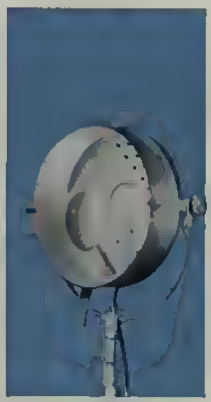
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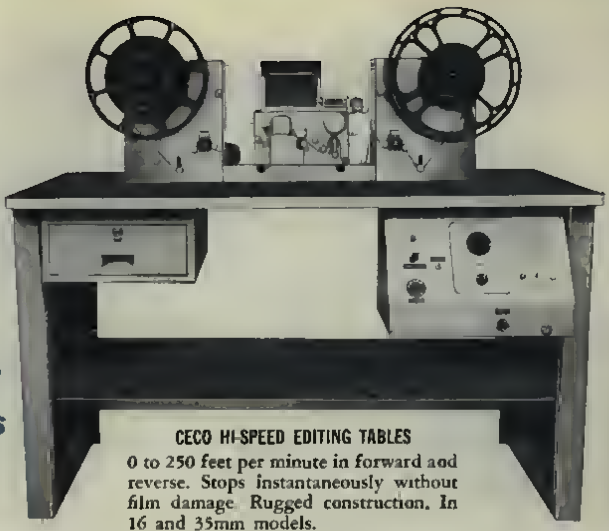
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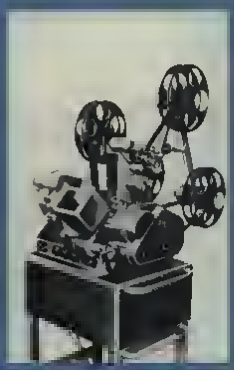
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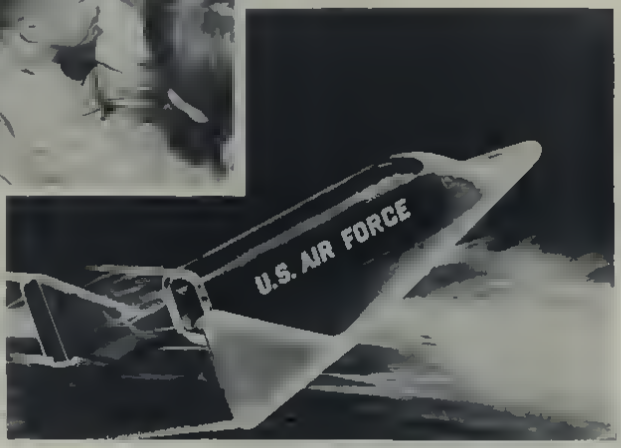
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LOOKING FORWARD in cockpit of a Boeing 707 as Boeing cameramen photograph Sim designed to aid pilots handle space craft approaches and landings. Arrow points to one of three interlocked Arriflex 16 cameras used while Pilot Brien Wygle banks ship in a simulated outer space flight Cameramen are: Dan Egerstrom (in co-pilot's seat), R. Wertes (behind Egerstrom), and Norm Olson (behind Wygle)



AT SIGHT IS artist's conception of Air Force's proposed pilot controlled space ship Dyne Soar, for which Boeing's motion picture division produced films to help determine a pilot's vision requirement during flight of the craft

Films To Train Space Ship Pilots

To train men for the nation's first pilot-controlled space craft, Boeing's Aero-Space Division conceived and produced a three-strip Cinerama-type motion picture simulating a spaceship's approach and landing.

By GLENN H. JONES

Supervisor, Motion Picture Group, The Boeing Company, Seattle, Wash

HOW MUCH WILL A pilot have to see to land a space ship which has successfully re-entered the Earth's atmosphere?

This is one of the vital questions that The Boeing Company is trying to answer by having "test" pilots make simulated Project Dyna-Soar approaches and landings through the use of motion pictures, before the actual space vehicle is built.

Flight tests of Project Dyna-Soar, the nation's first pilot-controlled spacecraft, are scheduled to take place within the next few years. Boeing's Aero-Space Division in Seattle, Washington, was awarded a contract in 1959 to design and manufacture the Dyna-Soar system for the Air Force. Just how soon

the actual tests will take place depends upon what timetable the Air Force sets for the program.

Project Dyna-Soar was conceived as a delta-winged space glider that can be hurled into orbit by a powerful rocket booster. The theory is much the same as the one behind Project Mercury. A booster will hurl the space vehicle beyond the Earth's atmosphere—reaching speeds of Mach 25—where it will go into orbit.

However, at this stage of the operation, significant advantages are realized by giving a pilot capability for controlling re-entry and choosing a landing site. The Mercury capsule, with only a parachute slowing its descent, lands in primarily chance areas.

The Dyna-Soar has a gliding range that covers many thousands of miles. The pilot will pick his own destination and pinpoint it with virtually the same accuracy as other manned aircraft.

Air Force's Top Project

This difference was significant enough to cause Lt. Gen. Roscoe C. Wilson, Deputy Chief of Staff of the U. S. Air Force, to recently call Project Dyna-Soar, "the most important research and development project it (the Air Force) has."

A three-phase operational test is planned by the Air Force and the National Aeronautical and Space Administration:

First, an unmanned Dyna-Soar will be shot into sub-orbit and recovered.

Second, a manned Dyna-Soar will be shot into sub-orbit and landed by the pilot.

Third, the manned vehicle will be shot into orbit, returned and landed by a pilot.

Boeing was asked to develop a design that would satisfy the requirements of both a high-speed ballistic missile and a manned aircraft. Among the many problems posed were two conflicting requirments:

Continued on Page 491



SCENE FROM "Shadows," experimental film directed by film star John Cassavetes and which has since been released to theatres.

Experimental Film Venture

By HERB A. LIGHTMAN

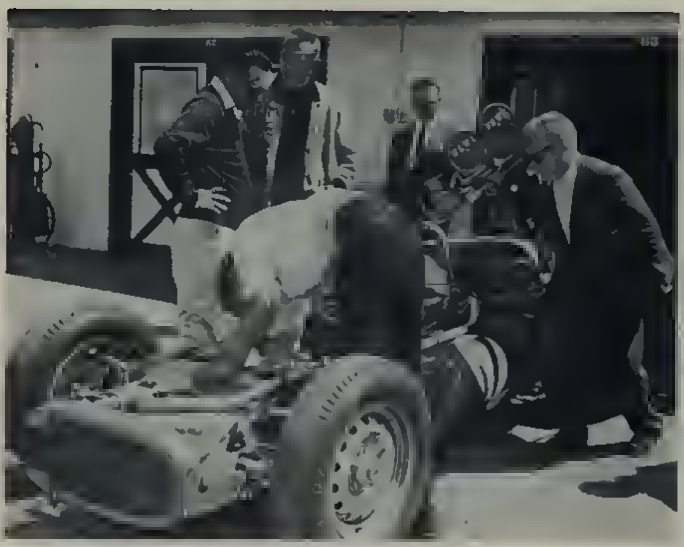
IN A RECENT ISSUE OF *American Cinematographer* an article titled "The Experimental Film" made the point that, while such cinematic sorties are rarely commercial successes, they nevertheless are valuable contributions in film making in that many are possible trail-blazers to fresher, more vital motion picture techniques.

"Shadows", the initial directorial effort of actor John Cassavetes, is a phenomenon among experimental films in that, despite the fact it was never intended for theatrical release, it nevertheless is currently enjoying a successful run on the art film circuit — a circumstance which should considerably increase the material worth of its surprised producers.

Continued on Page 500



JOHN CASSAVETES conceived and directed the award-winning "Shadows" as a dramatic workshop project. Originally shot in 16mm, the picture was blown up to 35mm and given national theatrical release. As a result of the picture's success, Cassavetes was made a director at Paramount studios in Hollywood.



TV-NEWS CAMERAMAN Bill Londrum (right), using his Transist O-Sound modified Auricon camera captures a detail shot for a sequence in WLW-I's "Today At The Track" video film series.

Filming The "500" For TV

Film choice of station WLW-I for TV coverage of the annual 500-miler at Indianapolis.

By ALLEN E. HALL

THE MONTH OF MAY is an exciting one in Indianapolis. During May each year, over one million automobile race fans flock to the nation's auto racing capital to watch what has often been termed "the Olympics and Mardi Gras of the racing fraternity."

Because the annual 500-miler and all the associated activities that precede it is a natural attraction for television, May also is an exciting, if not hectic, month for local television producers.

For the past four years, putting the Indianapolis race on television has been my assignment at station WLW-I. This year, the job—and the event itself—was the biggest ever. Things start humming May 1st and gradually crescendo to the big event Decoration Day. WLW-I kept TV fans auto racing conscious through its daily "Today At The Track" feature— a 15 minute news report produced with 16mm film—that went on the air nightly at 11:20. The aim of this special events show was to present all the important activities related to the big race right up to race day, the 30th of May. The night before the big race, we put on a special 30-minute preview show, which was edited from the daily film coverage and showed the highlights leading up to the actual race start.

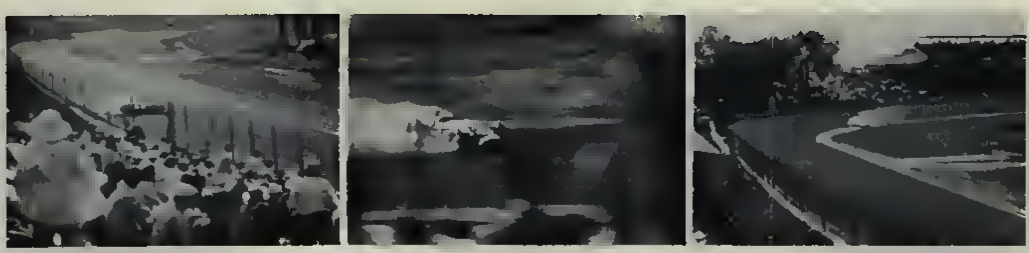
The big show of the month, of

LOOKING OVER Bill Londrum's shoulder as he adjusts sound level of sound recording camera while photographing interview



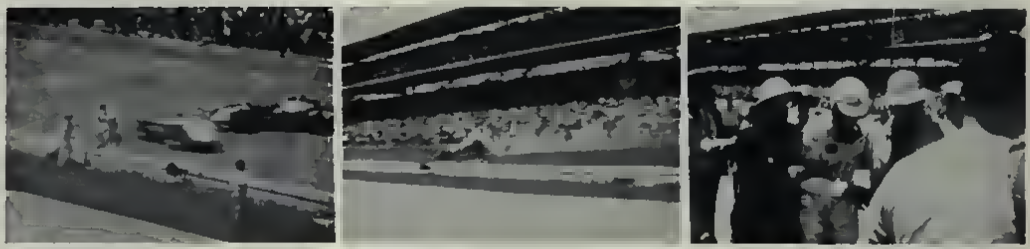
AUTHOR ALLEN HALL (L), producer of "Today At The Track," times interview between Chas Brackman and veteran driver Harry Hartz (R)





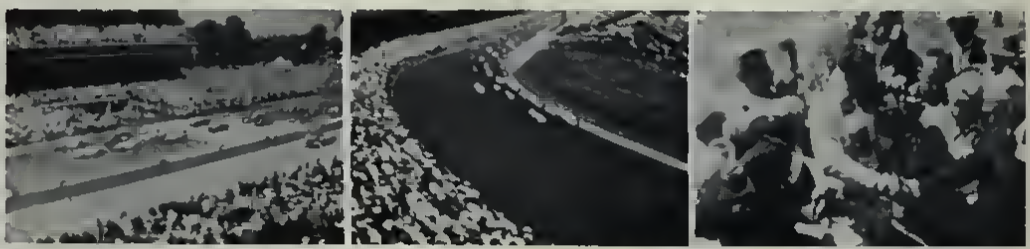
QUALIFICATION SPINS

When Jack Turner loses control of his No 45 Bardahl Special in the South chute at Indianapolis, alert WLW-I cameramen get the result on film. Center photo shows Turner spinning directly in front of camera. In third photo, Don Greenlend is spinning on the track's No 1 turn



FIVE-CAR PILEUP . . .

Oil tank ruptured, Don Davis loses traction in spilled oil, abandons car as A. J. Shepard streaks by. Latter goes out of control, crashes wall, caroms into Bill Cheesbourg's car. Following is Roger McClusky who adds to pileup, and is followed by Jack Turner, seen being helped from track in photo at far right. All photos are film-clip blowups from coverage by WLW-I



START AND FINISH OF "500" . . .

The 33 qualifying cars get the green flag from starter Bill Vandewater, then the cars charge into the first turn. Both scenes were shot by WLW-I cameramen stationed in towers high above the track. In third photo, winner A. J. Foyt sits smiling in the track's Victory Lane

course, was the "500 Wrap-Up" after the race. The total scheduled coverage comprised six and one-half hours of programming which, with over-runs on the week-ends of the qualifying runs and of the finals in the race-participants' golf tourney, actually ran close to eight hours.

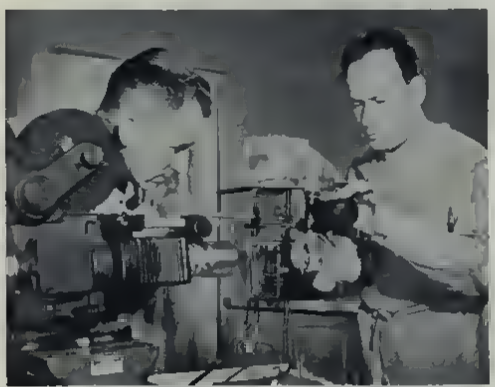
Besides the usual newscasts, our daily 15-minute "Today At The Track" telecast also included a feature story. Each story was conceived to provide videoviewers with a better understanding of some aspect of speedway activity that directly affects the outcome of the race. This year, for example, we devoted one feature to showing how a racing car chassis is adjusted to pick up that extra mile-per-hour; another, a feature about which we received the most comment, was demonstration of how the driver and his pit crew signal each other during the course of the race.

Our first consideration in planning "Today At The Track" was which medium to use: live television or film. We chose film coverage again for the fourth year for several reasons, chief among them being mobility, selectivity and salability. It was obvious that live TV would limit our coverage to one location on the track for a 15-minute period, whereas with film we could go anywhere, anytime with our cameras to get silent or SOF coverage of a news story or

Continued on Page 494



M.I.S. CAMERAMAN, using Arriflex camera, photographs Dr. Irwin A. Moon walking and reading normally while wearing image-inverting spectacles for the Moody science film, "Windows of the Soul."



M.I.S. TECHNICIANS prepare a set-up for filming the valve action of the human heart, using their invention, the Cardiac Pulse Duplicator. Illumination is provided by tiny strobe light placed within the heart.



SHOOTING A SCENE on one of the permanent sets on the sound stage of the Moody Institute of Science. Here Dr. Moon demonstrates a scientific theory while camera crew, using blimped Mitchell 16 camera, photographs the action. Film production equipment is the very latest.

WORLD'S BIGGEST

By DARRIN SCOT

THE CONSERVATIVE facade of a former Masonic Temple building in West Los Angeles gives little hint of the exciting activities which transpire within its walls. A neat bronze plate identifies the structure as the headquarters of the Moody Institute of Science, but there is no exterior clue to the fact that this is a full-scale, completely self-contained motion picture studio and film processing laboratory in miniature, which performs within its own walls every operation of motion picture production except the manufacture of the film it uses.

What is remarkable about the Institute is not merely the parade of superlative scientific films which it has produced in the last sixteen years, but the fact that it has constructed in its own machine shop (mostly out of scrap and war surplus materials) scientific instruments and special purpose motion picture equipment far more advanced than are generally available on the market. The resourcefulness of the Institute's relatively small but intensely dedicated staff more than compensates for the limited budget with which it works.

MIS, as the organization is familiarly known, is the dream-come-true of Dr. Irwin A. Moon who, as a boy, aspired to become a physicist, but instead responded to a call to enter the ministry. As pastor of the Montecito Park Church near Los Angeles he was very much impressed with the interest shown by his youth group in the marvels of science. An ardent amateur movie-maker, he began to film simple scientific demonstrations to point up his sermons —the recurrent theme being that the wonders of science are but the visible evidence of a Divine Plan of Creation.

The Film Studio's Beginning

The response to this revolutionary wedding of science and religion was overwhelming. Dr. Moon was besieged with invitations to show his films, not only to other congregations but to secular clubs and civic groups as well. Thus encouraged, he went to work in earnest, converting the parsonage into a veritable movie studio with the bathroom serving as laboratory. In his bedroom he set up a camera

LITTLE STUDIO

How science and cinematography work hand in hand at the Moody Institute of Science in exploring the marvels of nature and the Universe.

and a bank of floodlights coupled to an electrical timing device of his own invention. With the timer turning the lights and camera on and off at prearranged intervals, he photographed a spectacular time-lapse sequence of a camellia growing and bursting into bloom. The demand for his pictures, now called "Sermons From Science," soon became so great that he resigned his pastorate to devote full time to his "laboratory of faith."

Off-Beat Evangelism

During World War II he was assigned by the USO to travel from base to base throughout the U.S. and show his films and to lecture. His G.I. audiences responded with the same enthusiasm they accorded Bob Hope and other celebrities sent to entertain them. Soldiers at the various ports of embarkation, preparing to shove off into the black unknown, were especially receptive to his down-to-earth messages of faith. While wandering around these bases between showings, Dr. Moon became

Continued on Next Page



FOR LIP-SYNC filming in the field without need for an electric power source, Moody Institute and Stancil-Hoffman engineers designed this set-up. A tiny AC generator, mounted in the hand crank hole of the Eastman K-100 16mm camera, is driven by the camera's spring-wind motor and generates enough current to operate the Stancil-Hoffman tape recorder during each camera run. A stereo head on recorder facilitates parallel recording of sync control signal with audio signal, thus insuring frame-for-frame sync with picture when sound is re-recorded to 16mm sprocketed magnetic tape.





TWO SCENES ABOVE, from M.I.S. science film, "Windows of the Soul," show an illusion (left) and how it was staged (right). Aim here is to demonstrate how our minds interpret sensory data on basis of past experiences. In both pictures, the men are same height, but one appears a giant and the other a dwarf due to false perspective deliberately created in construction of the set. Distortion was neutralized by using a wide-angle lens on the camera which was critically positioned to "square off" the lines of the room.

WORLD'S BIGGEST LITTLE STUDIO

Continued from Preceding Page

greatly impressed by the formidable training job the military was doing through the use of film. By the time the war was over he was convinced that filming on a large, well-organized scale was a much better way to reach the millions than the efforts of one man shouting in the wilderness.

Dr. Will H. Houghton, president of Moody Bible Institute, had seen Dr. Moon's spectacular live show when he presented it at San Francisco's Golden Gate Exposition. He was excited over the possibilities of Moon's off-beat evangelism and his dream of a complete motion picture studio equipped to create in a professional manner new and more striking "Sermons From Science" that would reach a world-wide audience. He set out on the dubious task of selling the idea to his rock-ribbed fundamentalist board of directors in Chicago. The "impossible" happened, and in 1944 the Moody Institute of Science was set up as a non-profit California corporation with Dr. Moon as Director.

The Institute's first full-length color feature, "God of Creation," was an immediate success and set the pattern for the films that were to follow—true science presented in an unbiased, undistorted fashion—followed by a two-minute talk in which Dr. Moon explains that the miracles of science shown in the film must be part of a Divine Master Plan.

Since then there has been a consistent parade of spectacular science films produced by the Institute. "God of the Atom" traces atomic science from the textbook through the wartime blasts and ends on a note of hope that atomic energy will be used for the good of mankind. For "Voice of the Deep," special "hydrophones" were used to pick up and record the multitude of sounds made by undersea creatures which are inaudible to man.

"Dust or Destiny" features a grunion run—the spectacle of millions of tiny fishes dancing out of the sea to lay their eggs in the sand. "Red River of Life" actually peers into a human heart to show how the important valves of this vital organ open and close, allowing the blood to pass through the four cardiac chambers. This feat was accomplished by means of an apparatus known as a cardiac pulse duplicator, developed by Keith Hargett of the Institute. A human heart taken from a cadaver was suspended in a glass jar filled with water, while a piston transmitted positive pressure indirectly to the heart through the water, forcing the heart to contract. As the piston returned to its starting position, the heart dilated. This rhythmic contracting and dilating cause the heart to pump as it does in life. Plexiglass viewing ports were mounted over the heart's valves so their action could be observed and photographed in screen-filling closeups.

The Institute's latest production, "Windows of the Soul," is an imaginatively photographed document in two parts, which illustrates how our five senses, marvelous as they are, allow us to experience only a fraction of what is going on around us. Thus we are allowed to "see" odors, to perceive chips of cork suspended in air by means of sound waves of a frequency too high for the human ear to hear. To demonstrate how the mind turns right side up the inverted optical image projected by the cornea onto the retina of the eye, Dr. Moon repeats Stratton's classic psychological experiment by wearing inverting spectacles continuously for many days until he perceives things right side up again. After removing the spectacles the perceived

Continued on Page 484

CAMERA IN THE COURTROOM



Exemplifying the growing trend of approval for qualified cinematographers to shoot courtroom proceedings for TV newscasts, is the recent decision of a Houston, Texas, judge favoring a local station's coverage of a criminal court murder trial with sound cameras.

With the permission of Judge Myron Love and the approval of both the defense attorney and the district attorney in the case, staff cameraman Jerry Adams of station KHOU-TV photographed with sound the daily trial proceedings of the nationally headlined Tones murder case.

The court made space for the camera available on one side of the room. No photo lamps were brought in. Adams used film rated at 100 ASA indoors, and arranged for slightly stepped-up illumination in existing courtroom fixtures. Complete sound coverage from all speaking positions was obtained by tieing in the camera's sound system with that of the courtroom PA system.

KHOU-TV, which programs substantial local news specials and public affairs programs, also maintains on-the-street mobile film units in addition to its three-camera live pickup unit to cover daily events in the Houston territory.



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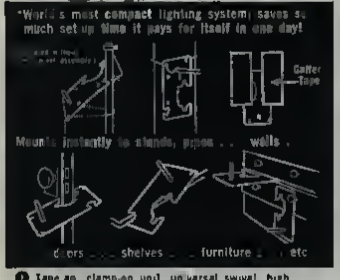
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image which had become upright is now suddenly inverted, but returns to normal after a time. In the film, in order to illustrate this phenomenon, Dr. Moon drives a motorcycle and flies an airplane while wearing the inverting spectacles.

To provide much of the technical research needed to formulate the motifs of its films, the Institute relies on a number of outstanding scientists from leading California universities, such as U.C.L.A., Cal Tech and U.S.C. As "friends" of the organization, the scientists contribute their vast knowledge in order to insure technical accuracy. Unlike the usual production procedure, scripting of a motion picture is rarely done until after the photography is completed. A brief synopsis is used as a guide and then a temporary narration is written for interlock screening with the rough-edited picture. When the final cut is completed a writer is assigned to tailor a full-length narration. Much of the writing on the MIS science films is done by Dr. Moon himself, because when he appears on camera it is important that ideas be expressed in a way that seems natural to him.

Over the years the Institute has collected or built camera and sound equipment for a variety of purposes. On location, 16mm Arriflex cameras are most always used, while the Cine Special is a favored instrument for animation, time-lapse and microscope photography. On the Institute's well-equipped sound stage a Mitchell 16mm camera is used for all lip-sync shooting. Dubbing is done in the auditorium of the building which features a console having seven available channels—although four are considered sufficient to create the average composite track.

Many of the Institute's films include photomicrographic sequences. Here a separate department photographs such footage. The microscope used is a rather ancient Leitz instrument, a bit wobbly in the pinions, but otherwise sound. Several types of light sources make possible a variety of effects. One is a 1,000-watt projector lamp mounted in a special housing. Useful for certain types of work is a zirconium arc "crater" lamp, which produces a spot arc only .001 of an inch in width.

In the sub-stage there are water-cooling cells for filtering out infra-red rays and a 45-degree angle front-surface mirror which takes the light through the sub-stage optics, permitting light field, dark field and phase microscopy.

For microscopic photography, the microscope and the lens of the camera are removed; a tube of black paper is set in place to screen out extraneous light, and the image is projected directly onto the film through the sub-optics. The operator can view the scene while it is being photographed by means of a prismatic eyepiece on the side, and the microscope has a movable stage so that a swimming protozoan, for example, can be kept centered during the take.

In the Institute's machine shop adaptations of equipment are often made to meet the needs of a particular project. For example, there is currently in production a film pertaining to the "language" of bees. In order to film these insects in color in life-size close-ups, light of high intensity is required. The problem is how to avoid roasting the tiny subjects in the process. To reduce the heat a stroboscopic light source is utilized. Mounted on the rear of an Arriflex camera is a tiny synchronizing unit which develops two pulses per frame. These pulses are amplified and shaped properly for initiating the stroboscopic light pulse. There are two separate pulses: one for taking a picture when the shutter is open and the other for viewing when the shutter is closed. The synchronizing device includes a soft iron vane inserted through a plastic cylinder which, as it rotates, goes past the pick-up head twice per frame. Thus the light is on only a fraction of the time and the heat is reduced appreciably.

Another noteworthy adaptation is a system of synchronization for camera and recorder which eliminates the need for clap-sticks. When the camera-and-sound system is up to speed a button is pressed and a tiny solenoid operated "flag" (a metallic vane mounted on the matte box supports) flips up and down in front of the lens. Simultaneously, an AC signal is recorded on the sound track. This system has also been adapted to multiple camera set ups so that four or more standard blimped cameras may, by remote control, be started and stopped at will during sound takes which have head and tail sync marks automatically applied. In this way the flexibility of live television technique is applied to film production with a resultant economy in film stock; also the system of automatic cueing makes short-cut editing possible.

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Type 242

developments resulted from a 125,000 mile world-wide trip which Dr. Moon (piloting the Institute's twin-egine Beechcraft Bonanza) made for the purpose of shooting some 45,000 feet of color film that later was incorporated in several of the Institute's productions

A major objective of this trip was to bring back filmed lip-sync interviews with interesting people in obscure corners of the world. This would involve shooting and recording "right out in the bush"—in the jungles of Kenya, the headwaters of the Amazon, the backwoods of Nigeria, etc., where power facilities for camera and recorded would be unavailable.

Because the limited capacity of the plane precluded hauling a generator, and because battery power-packs often run down just when you need them most, some other solution to the power problem was sought.

Ultimately, Moody Institute and Stancil-Hoffman engineers solved the problem with the development of a tiny AC generator designed to be mounted on the hand-crank shaft of the Institute's Eastman K-100 camera. In this manner, the camera's spring motor drives both the camera and the generator, with the latter generating sufficient power during a take to operate a Stancil-Hoffman miniature tape recorder. By mounting a stereo head on the recorder, it was possible to simultaneously record both the sync-control signal and the audio signal from the microphone and thus insure accurate synchronization of picture and sound at time of editing the film, following transfer of the minitape recordings to sprocketed 16mm magnetic tape.

Does All Film Processing

Unique is the fact the Moody Institute of Science does its own processing of color negative and makes its own release prints, which sets it apart from other production companies not on the major studio level. Although the total output is not astronomical (about 2,000,000 feet of film per year) the facility enables the Institute to maintain rigid control over all its negatives and release prints as a means of obtaining maximum quality. Eastman 7270 Inter-negative and Eastman Color positive are consistently used in the production of release prints.

Like most of the Institute's production equipment, its film processing equipment is of its own manufacture, and boasts many features not found in commercially available equipment. The developing tank section, for example, has a bank of torque motors mounted along one side which individually drive each shaft of the mechanism.

The Institute's first film printer used an old Houston stand as its base. It was a slow (20 feet per minute) step printer used mostly for making internegatives. One of its salient features was the ability to stop on cue exactly on the last frame of each scene.

Godget Doubles Capocity

Institute engineers have adapted a variable speed device for the printer which uses an aircraft-type RPM indicator that makes possible operating at accurate speeds, and permits release prints to be turned out at the rate of 120 feet per minute. This innovation has doubled the laboratory's capacity and has reduced he error factor significantly. Print requirements run between 500 and 700 prints per picture.

The sound stage at the Institute is approximately 40 by 50 feet in size and has an 18-foot ceiling. Permanent are two standing sets: Dr. Moon's study, and the laboratory for scientific demonstrations. Other sets are constructed as needed. Above the stage is a pipe grid for mounting lights, for which 800 amps of 60-cycle AC current is available. Most switching is done by remote control.

The Institute has its own Art, Titling and Animation departments. The animation crane is built from one of several castoff lathe beds which the War Assets Administration donated to the Institute. All of the functions of the animation stand have been brought down to a control box with a console handy to the operator. Selsyn motors and magnetic clutches facilitate the automation, while a foot switch acts as actuator for the platen cylinder and micrometer dials.

SPEEDY CAMERA SHOOTS SPEEDY CARS



MEMBER OF Bell & Howell "photo finish" camera crew at Indianapolis Motor Speedway checks out specially adapted 70SR camera which was subsequently used to photograph annual 500-mile Memorial Day race.

For the second year in a row, super-slow motion picture equipment developed by Bell & Howell Company was used to record the finish of the 500-mile Memorial Day race at Indianapolis Motor Speedway. Employed was a specially modified camera capable of shooting at 1/250th of a second.

The camera, a 16mm Bell & Howell Model 70SR, had been modified with a 10-degree shutter, replacing the 110 degree shutter that is standard for most 16mm cameras. This fast shutter enabled it to expose slow-motion movies at 128 frames per second, compared to the normal sound speed of 24 fps and 64 fps for normal slow-motion.

When the race films shot at 128 fps are projected at 16 fps, everything appears to be traveling at only one-eighth its actual speed. A car hitting 160 mph appears to be doing only 20.

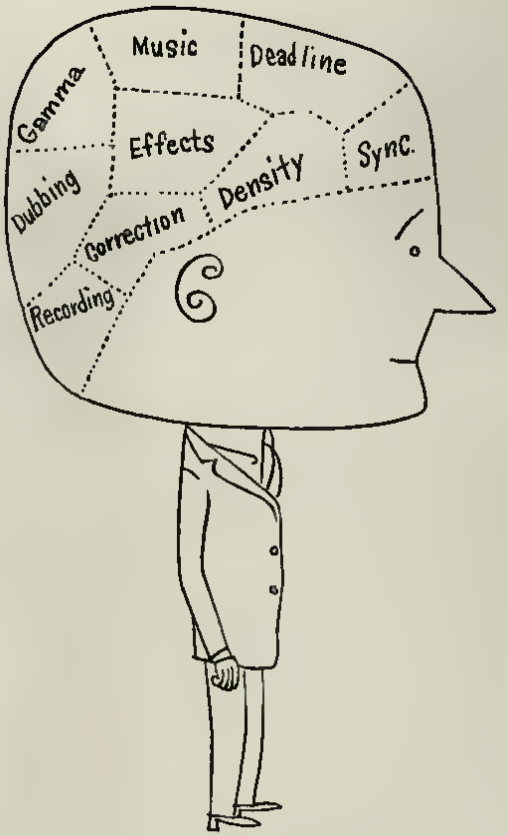
The camera, which was fitted with a 1-inch f/1.9 Bell & Howell Super Comat lens, covered a 50-foot area—30 feet before and 20 feet after the finish line.

Another discarded lathe bed was utilized in constructing a horizontal titling crane with motor driven carriage. Art work is held in a vertical position and push-buttons operating micro-switches start the carriage moving in or out to a pre-determined distance where another micro-switch automatically cuts it off. The front end of the title board is movable in the horizontal plane and the back end is movable in the vertical plane, which means that a truck-in can be made from a full shot to any portion of the art work. The advantage of this method over single-frame animation, as far as speed is concerned, was demonstrated when the Institute recently filmed a series of 26 Bible stories for children. These films consisted entirely of static paintings enlivened by a great deal of camera movement. The moving camera shots which would have taken three weeks to do by means of single-frame animation, was accomplished in three days on the automatic horizontal crane.

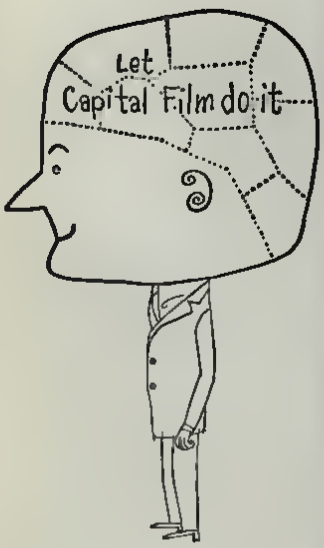
Despite all of these mechanical developments, it is the loyalty and resourcefulness of the Institute's personnel which is its greatest asset, according to Dr. F. Alton Everest, the organization's Director of Science and Production. Dr. Everest a former professor of electrical engineering, met Dr. Moon while working on a University of California research project at the Navy Electronics Laboratory in San Diego. He shared the dream in the beginning and helped make it a reality, but he tends to minimize his own part in the success of the venture.

"Dr. Moon is the guiding light and the motivating character of the Institute," he explains. "He sets the standards and the pace and is the creative genius in all that we do. I don't know of anyone who has the breadth of ability that he has. He is an amateur radio operator, a good electronics man (both in design and construction), and a top precision man on the lathe. He flies his own plane, is very good with a camera and is an expert in time-lapse cinematography. He is the producer on all our pictures, follows production very closely and maintains constant liaison with those in responsibility." ■

Most 16mm producers use a reversal-positive film in the camera from which a "first trial" reversal print can be contact-printed and release prints made either by contact from the edited originals (reversals) or from a dupe negative (positive).



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ON SAFARI WITH "HATARI!"

Continued from Page 472

camera case, permitting angle iron straps to be screwed in, then bent over the top of the magazine, making the magazine an integral part of the camera.

Here let me digress a moment.

Headed by John Wayne, our cast included the young German star Hardy Kruger, Red Buttons, Italian Elsa Martinelli, Gerard Blain and Michele Girardon of France, Bruce Cabot from Hollywood via Rome, and Val de Vargas from New Mexico

No Stuntmen Used

Wayne, Kruger and the others performed all their own stunts, drove truck and Jeep as though there were no tomorrow, and actually roped and wrestled the game. In the picture there are no "process" shots, no tricks, no gimmicks — which intrigued me. It might be the reason behind Mr. Rosson's disbelief. However and anyway—

Having worked previously in Africa, in the jungle for "Something of Value," I was amazed at the fantastic lighting we found on the Tanganyika plains. We were there during the dry season, when all vegetation was parched and light in color. Light came, it seemed, from a thousand sources, from directly overhead (we were two degrees below the Equator), from all sides, and even reflected up from the glaring dust and sand. The skies were an unbelieveable blue, with cloud formations right out of a painter's dream. The clouds, constantly drifting, were like a hundred moving reflectors. We were shooting Eastman Color, stopped down usually to the equivalent of 22, and had it printed at 17.

Light was always deceptive, creating more unique exposure problems, perhaps, than anywhere else in the world, including New Mexico, Arizona, Death Valley and Australia. These conditions were further compounded by the clear (smogless!) air. At times it seemed as though the eye ran out of landscape, which went on and on and on, finally disappearing with the curvature of the earth. Mirages were routine, presenting "lakes" as wide as oceans, with the peculiar illusion of zebra standing on top of upside-down zebras.

A major problem was dust — finer than the finest talcum powder, as penetrating as rumor. Despite the constant use of plastic bags and covers, after every run we had to clean all equipment with compressed air. Here let me pay my belated thanks to the crew. Operator Jack Whitman's handling of one trick shot merits the spotlight. For a comedy scene we had a rocket (actual solid fuel propellant, nose cone guidance system) which actually worked, towing behind it a net measuring 82x120 feet.

Actual flight would be less than two seconds after blast-off. In addition to four regularly operated (and heavily protected) cameras, Whitman operated a high speed camera, with six-inch lens, at six times normal speed. When you consider that the rocket blasted off and reached a height of 100 feet, all in less the two seconds you'll appreciate Whitman's uncanny eye and skill in tracking it perfectly. A vote of thanks, too, to Harlow Stengle, our other operator, and to Bert Eason and Frank Stanley, our assistants.

In the comfort and safety of a Paramount projection room it all looks easy —now. But it isn't easy to forget, say, the buffalo who didn't read the script and thought he was supposed to chase *us!* He battered the jeep, battered the truck, even tried to climb inside!

Unfriendly Rhino

And there was the socially maladjusted rhino, whom we chased, roped and photographed. After the scene, we moved in with a three camera set-up on the ground for closeups of Wayne and the others tying up the rhino. The animal snorted, lunged and charged with such force that he actually pulled truck and jeep *sideways* through the dirt. (Wayne, Red Buttons, Elsa Martinelli and Val de Vargas were in the truck. Hardy Kruger was driving the jeep.) With each lunge the powerful beast moved both vehicles a good 18 inches, finally getting sufficient slack in the ropes to slip them! The entire company rushed for safety in, on and under trucks, while the rhino, with singleness of purpose, spent his furor on the vehicles. In the midst of this ad-libbing, Val de Vargas, unaware that the rhino was loose, leaped from the truck to rope the animal's legs. Frantic screams from the trucks alerted Val in time to enable him to scramble back to safety. Having had his fun, the rhino ambled back into the forest. (It took us three days

to find another rhino similar in shape, size and coloring to finish the sequence. It took us a week to regain our composure.)

All told, we worked with more than twenty different kinds of game, including elephant, lion, leopard, cheetah, giraffe, wildebeeste, zebra and the smaller antelope types. The most frustrating was the hippo. We had gotten group shots of them at a river, and were trying to get a mass shot of them all yawning. They insisted on solo performances. Knowing that yawning is contagious, the crew and cast sat for two days yawning their heads off at the hippo, but to no avail. I've often wondered since what someone might have thought—say, Stanley or Livingston—had they come across us unexpectedly, all yawning in silence.

Our exposed negative was flown by single-engine plane to Nairobi, thence by jet to Technicolor's London lab. We usually got the film back in seven to eight days and we screened our "rushes" outdoors in a grove of thorn trees with a portable projector on a portable screen roughly four feet by six. After months of viewing the miniature version, it was a visible shock to the company after returning to Hollywood to see the film for the first time on a regular theater screen.

Gad, but those animals look big! ■

ASSIGNMENT IN JAPAN

Continued from Page 473

his crew, because his cast was made up of relatively unknown performers. Walsh has had his fill of actors who demand retakes and who want changes in their dialogue while the production lags.

"I'm trying to break in some new faces to get youth and virility," Walsh said.

Tom Tryon, David Hedison, Tom Reese, Linda Hutchings and Peter Miller head the cast. With the exception of Tryon, none of the actors have had major Hollywood billing before.

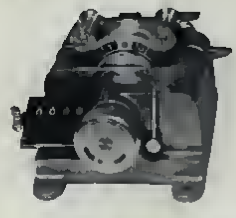
Most of the film's interiors were shot at Kyoto Eiga Studio. One notable location interior was an unused hall in the Gion Geisha district. It was this interior which Ballard had to deal with on his first day of shooting.

Because the hall was not designed for movie making, it posed a major lighting problem. With the aid of C-clamps, adequate light units were

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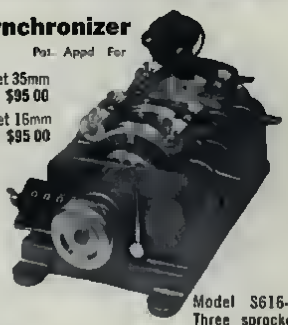
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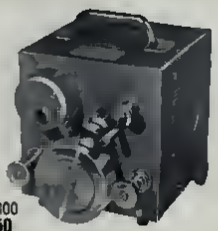




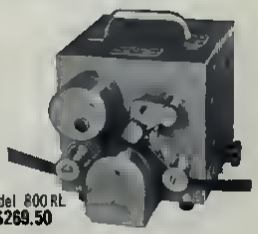
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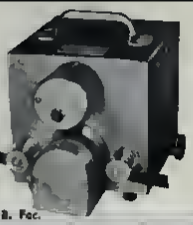


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mounted on the building's ceiling beams to produce the illumination level of 400 foot candles Ballard required.

In the Kyoto Eiga studio replicas of the interior of a Japanese house, the entrance to a garden, the rooms and lobby of a hotel, a Military Police office, a dressing room and even a complete bath house were constructed on the soundstages

Ballard had adequate ligbting equipment for this color picture, becausc much of it had been flown over from Hollywood. The number of lighting units available locally was inadequate only because Japanese cinematographers nominally employ a lower level of illumination and, thus, do not require as many units. Thank's to the foresight of his home studio, Ballard had a complete range of Brutes, Seniors, Juniors and other standard set lights at his disposal

Few Lighting Problems

Some minor difficulties arose, as one invariably expects when away from the home studio. One was the disparity of heights between the Japanese and American actors The faces and heads of the taller men would have been "burned up," i e., over-lit, if Ballard had lit solely for the Japanese actors Conversely the Japanese would have been underexposed, if he had established his lighting only for the taller men. One fellow, a giant Sumo wrestler, proved even more difficult to light than the Americans. He was seven feet tall!

It is when encountering such unexpected situations, Ballard commented, that a cinematographer must place his lights carefully, use double gauzes and "do the best he can."

Hollywood crewmen were impressed with the eagerness and ability of tbe Japanese technicians who worked with them. In fact a bit of this enthusiasm had to be dampened. Occasionally, a light was moved before it should have been. Most Japanese cameramen, it seems, are used to moving lights and making ligbting adjustments continuously.

Interesting is the fact this production involved a strange mixture of locations, often one representing another For example, a certain area of Kyoto was so photographed as to represent the American naval base city of Yokosuka Still other locations proved to be photographic problems because they did not have a typical Japanese appearance from the average camera angle. In such instances, Ballard often had the camera moved to include in the scene a Japanese torii (arch) or other distinguishing feature of a building or landscape

Despite starting the production shooting one day late, the film was one-third completed at the end of the first nine days of shooting. Walsh, Ballard and the crew kept up the speedy pace and held nightly shooting conferences whenever possible to smooth out any problems which could he forseen

For the dramatic combat scenes, the company moved to the base of Mt. Fuji. The shooting schedule had purposely been arranged to coincide with the full-scale maneuvers there of the U.S. Marine Corps. The Marines had agreed to vary their schedule whenever feasible to accommodate the shooting requirements of the film makers.

For the combat scenes, there were available 2,500 men, 21 tanks, 40 artillery pieces and 40 trucks. In addition, air support facilities were available from nearby Atsugi Naval Air Station.

Twentieth Century-Fox, of course—as is required of all motion picture companies—had to pay for all fuel and ammunition consumed, and also for food and other expenses incurred by the Marine Corps during the time it participated in the filming of the picture

Among the many sequences photographed on this location, one deserves special comment; it was a unique accomplishment made necessary because no process equipment was immediately available. The scene called for a group of Marines to ride in a truck from the fighting at the front to a quiet rear area, while in the background hundreds of Marines would be seen marching toward the front lines.

Mechanics Solve Problem

Because of the angle of view selected for this scene, it could only be photographed with the camera mounted on the same truck transporting the marines. The truck normally used for transporting personnel in a situation such at this was too small to accommodate both the Marines and the camera and sound crews and equipment. The problem was solved when Marine mechanics from the motor pool were prevailed upon to construct a false body on the bed of a much larger truck. But while this vehicle now provided room for the camera and sound crews and equipment, it could not accommodate the portable power generator necessary to drive the camera and sound recorder. Another truck was pressed into service, on which was mounted the generator. It preceded the truck carrying the Marines, and a slack cable linked the two to carry power to the camera and recorder. With this setup, Ballard and his crew shot three and a half pages of dialog in one continuous run.

Althougb the company was working near one of the most impressive natural landmarks in Japan, the cameras could not include Mt Fuji in any of the shots because the battle action ostensibly was taking place in Korea.

In another scene there was a smaller mountain similar to Mt Fuji that appeared in the background. At the end of the take Ballard had the camera turned 90° to include the real Mt Fuji. Then he and Walsh walked into the shot, just to prove to viewers back at the studio that the film crew was not sneaking the famous mountain into the film

Unexpected rain plus a worsening of the situation in Laos combined to alter the company's shooting plans, just as it was prepared to shoot the main battle sequences. Then when President Kennedy ordered out all the troops by ship to stand by for possible action in Laos, plans were made to complete the battle sequences on the island of Okinawa

Reflecting on his experiences in shooting in Japan, Ballard said, "Things were not much different than we normally encounter in the United States. The people were wonderful, the sound stages on which we worked were adequate. and we always bad ample lighting equipment. If we had been forced to improvise much, the story might have been different."

An interesting footnote to this story concerns the friendly gesture of Ballard in aiding Takoho Yamaguchi, a 17-year-old orphan boy who worked as an apprentice cameraman with Ballard's crew Ballard and his wife, who bave two boys of their own, made plans to bring the youth to the U.S. so he could study motion picture photography and production. ■

Photographing miniatures and miniature action requires shooting at increased camera speeds so that the action of moving elements in scenes will appear as realistic as possible on the screen.

FILMS TRAIN SPACE PILOTS

Continued from Page 477

1. The Dyne-Soar vehicle needed streamlining to cut down drag in flight.
2. The pilot needed enough windshield area to allow him vision for maximum performance at the controls.

The larger the windshield area, of course, the more it affects the streamlining. The solution ultimately sought by Boeing was to give the pilot as much vision as he needs for maximum capability but no more than necessary

Space engineers at Boeing turned to the Aero-Space Division's Motion Picture Unit to provide an initial phase of the solution to the problem. Our assignment was to produce motion pictures that would accurately simulate a Dyne Soar approach and landing under both normal and abnormal (anticipated but not recommended) conditions.

Plans called for Boeing to project this film later on a wrap-around screen set up before a full-scale Dyna-Soar cabin mockup, thus enabling a "test"

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pilot seated inside the mockup cockpit to get the "feel" and check visibility on the landing approach. With the mockup nose raised, the visibility problem during the nose-high altitude of landing could be evaluated.

In order to do this successfully, we had to draw upon all the experience we had gained in exposing several million feet of flight test and aerial cinematography for Boeing during the past ten years.

Our instructions were explicit: "Create a color film to fill a wrap-around 170-degree screen." The final projected picture had to follow several precisely calculated Dyna-Soar landing approaches from over 40,000 feet altitude to and including the landing flareout.

Three Arri-16's Used

The assignment was given to us in November, 1960. After two preliminary flights—during which we made several checkout runs—we were ready to do the job in February, 1961.

Actual shooting was done from the cabin of a Boeing 707. We decided to use three Arriflex 16 cameras with 10mm lenses rather than one wide screen camera. Each camera covered a 57 degree arc, which, when interlocked, gave us the 170 degree coverage that we required.

Camera "one" was aimed directly forward through the co-pilot's window, camera "two" out of the left side (port) window and camera "three" out of the right side (starboard) window of the control cabin. This allowed us to record the total field of a pilot's vision and still not take in any part of the 707, which was our camera "platform."

Each camera mount was bolted to the window frame of the cabin to assure complete rigidity during turning, banking, diving, etc. The cameras were equipped with 400 foot magazines, which permitted three approach configurations per load. By doing this, we avoided changing film in mid-air. Even in company-owned aircraft, flight time is expensive and we had to make every minute count.

Because of the size of the magazines, the side cameras didn't fit into the space between the window and ceiling. This problem was easily solved by bolting the camera mount to the ceiling with the camera and magazine up-side-down, then operating them in reverse.

It was extremely important that perfect synchronization be maintained on all three cameras. We were operating from an Engineering Flight Plan or "shooting script" that required certain turns and maneuvers and finally a changing of camera speeds from 24 to 16 frames per second in order to simulate the Dyna-Soar speed during landing flareout. As the Dyna-Soar final approach speed will be in excess of that which could be safely flown in our photo aircraft we changed camera speeds to get the exact effect.

This was accomplished by removing the standard Arriflex motor and substituting a variable speed Maurer motor and an adapted drive on camera number one. The "master" drive unit was then connected to the other two cameras by flexible speedometer cables to give a mechanical interlock to the side cameras.

At this point we had about every variable you can think of—three cameras, two of which were up-side-down, running backwards—maintaining perfect sync—slowly changing from 24 frames per second to 16—change in shutter speed—increase in exposure!

With the cameras in place and the frame rate synchronized, everything else became a matter of routine. Because of the short focal length of the lenses used, we had no focus problems. Our earlier flights indicated that we did not have to reset lens apertures during the 24-frame to 16-frame speed change. The brilliance of the overall scene with blue sky and some ground haze pretty well balanced out the darker terrain of the approach and landing area when camera speed was reduced to 16 frames per second. We had previously determined that if exposure was a problem we would have the printing lab compensate for the difference when making the prints.

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To get the desired color results we shot with Ektachrome Commercial Film, Type 7255. This gave us the combination of speed, color rendition and definition which we required.

Don Egerstrom, operating camera "one," was the shooting director during the flight. Both he and the pilot of the aircraft operated on cue from the Engineering Coordinator who timed the descent pattern and maneuvers with a stop watch. Operators of Arris "two" and "three" made sure these cameras were working properly.

During the test shooting the 707 made three plus minute descents—coming within ten feet of the runway—at Edwards Air Force Base, California. The first pass followed Dyna-Soar landing procedures and the next two were alternate approaches.

In all, three hundred and fifty feet of film was used by each camera. Perfect synchronization was achieved while shooting, so all that remained for us to do was adapt a projection technique that could be utilized to "surround" the cabin of the Dyna-Soar mockup.

Our original projecting plan was similar to the Cinerama system. Three selsyn-interlocked projectors with 1200-watt bulbs were to cross-project the films on an "open U" shaped screen. Because of space limitations in the mockup display area we had to resort to background projection. The final results were much the same although we paid a penalty at the points where the images overlapped.

In the initial screening, the "test" pilot was seated facing the front of the cockpit. In front of him were all the flight instruments and controls. The curved projection screen was placed approximately six feet out from cabin area to give the "surround" effect.

During projection of the film, the "pilot" operated the flight controls, followed through on the various maneuvers, checked angles of visibility and reacted to the simulated landing.

Thus, through the use of motion pictures Boeing and the Air Force have been able to simulate approach and landing visibility problems and design a cockpit environment best suited to meet all requirements.

The final result is that space craft designers and the men who will fly Dyna-Soar will have advance knowledge of the visibility problems, and windshields can be designed to better meet space flying requirements. ■

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FILMING THE "500" FOR TV

Continued from Page 479

some important incident, or to produce a feature. In this, we had a particular advantage with our SOF set-up WLW-I's chief cameraman, Bill Landrum, had developed a highly successfull conversion for Auricon cameras known as Transist-O-Sound. With this compact equipment powered by a nickle-cadmium battery on a shoulder strap and with the camera mounted on a shoulder-pod, Landrum was capable of shooting top-quality footage anywhere—even in the Pace Car traveling 100 miles per hour around the track.

Practice Coverage

To photograph the daily practice sessions at the Speedway and shoot the feature stories, WLW-f assigned a crew of three: reporter Charlie Brockman, cameraman Bill Landrum, and myself as producer. The mobility afforded by our set-up gave us a terrific advantage over the competition, as evidenced by the handling of the two top stories during this year's sessions

The first concerned the well-known Novi race car which long has been a favorite with the public. This year, following the bad showing last year, it was back in the front of the news with lead-footed test driver Dick Rathman pushing it around the track at 148 MPH, the third fastest lap in Speedway history. Later, when the car blew up and slid 2,000 feet—almost the entire length of the backstretch—the event became a top story. Fifteen minutes after the accident we located the driver, Ralph Lagouri, in the garage and interviewed him on the spot. With the still-to-be-treated flash burns on his face, Lagouri described the accident and ended the interview by saying, "When she started to climb the wall, I thought, 'Here we go, out of the ballpark!' "

The coverage of the year's most important auto race story was our best. 1961 became the year of the 150 MPH lap (the four minute mile, the 27 foot broad jump). The question wasn't whether it would be done, but who would do it. And it looked as if Tony Bettenhausen would be the one. Tony had ran a lap in his Autolite Special at 149.2 MPH, just a tick of the watch from 150. Anytime he was out in his No. 5 all cameras were on him. But the day he went out to test Paul Russo's car, few people even knew he was on the track, except our cameraman Bill Landrum. Landrum shot a complete sequence of Bettenhausen getting into the car and driving it onto the track. Two laps later, when Bettenhausen crashed into the wall directly in front of the pits, Landrum was there, too, and got the disaster on film

Landrum shot the crash and the first of the rescue operations with his Bolex. As he ran to get closeups, he called for the Auricon. I set it up and Bill switched to it to cover the dramatic battle with the fire and the attempts to get Bettenhausen out of the car. Landrum was right in with the rescue crews, and of course it was difficult to keep the camera steady; but with the SOF the footage he got was some of

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May	1	Opening Ceremonies	Downtown
		Opening Track for practice	Indianapolis Motor Speedway
"	13 - 14	Qualifying Trials	" " "
"	15 - 19	Practice	" " "
"	20 - 21	Qualifying Trials	" " "
"	24	Pro-Celebrity Golf Match	Speedway Golf Course
"	25 - 28	$50,000 - 500 Open Golf Tournament	Speedway Golf Course
"	27	Drag Races	Raceway Park
		Carburization Tests	Speedway
		Parade	Downtown
"	28	Sprint Car Races	Raceway Park
"	29	Driver's Meeting	Speedway
		Stock Car Races	Raceway Park
"	30	Annual 500 Mile Race	Speedway

the most gripping ever shot at the Speedway. The complete story of Tony Bettenhausen's last ride was featured on CBS's nationwide newscast that night, and ABC used it two weeks later on its sports special devoted to the race's qualification trials.

Qualifications Coverage

Unlike with live TV camera coverage, use of film cameras affords the producer many advantages when covering the 500 Qualifying events and the race itself. He can station as many cameramen and cameras around the Indianapolis track as his budget will permit (One year a company had thirty!) This insures covering everything and, most important, affords the producer time to review all film shot and to edit it into an interesting show. The producer using live TV is constantly under deadline pressure.

In order to meet our program deadlines, my first step was to reduce the amount of film exposed by using fewer cameramen, but with facilities and in positions to achieve maximum coverage of various sections of the track. The second step was to reduce the camera-to-projector time by expediting the editing procedure.

On Qualification week-ends, WLW-I employed five cameramen; one, using a 3-inch zoom lens, was stationed atop the stands in the south chute (straightaway) and covered the No. 1 turn, the chute and the No 2 turn. A second man, also using a 3-inch zoom lens, was stationed in the stands at the end of the No. 3 turn. He covered that turn, the north chute, and the start of No. 4 turn. A third man was placed at the end of the No. 4 turn. This man, incidentally, didn't shoot a single frame of film until the last day of the Qualifying runs, when driver Bill Randall spun and hit the wall right in front of him. Bill Landrum worked with the portable Auricon in the pits, recording interviews with the drivers after completion of their qualifying attempts. The author took up an H-16 Bolex to cover the starting line, pit activity, and rode the pace car to accidents with Chief Steward Harlan Fengler.

Ideally, there should be a man with a zoom-lensed camera on each turn, a man in the tower to cover the starting line, the Auricon operator should double up with the silent camera operator to cover the pit activities, and a seventh cameraman should ride the

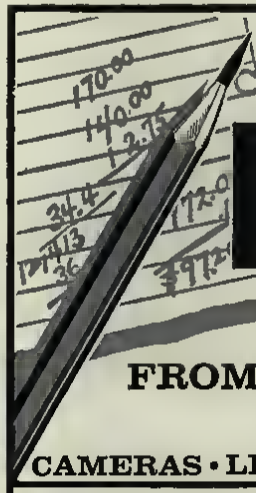
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Covering the 500 Race

In previous years, there has been far too much editing to do in too little time—about 5,000 feet of film that had to be cut to a half-hour show in about six and a half hours. For this year's race coverage, the author resolved to reduce the amount of film exposed and to expedite the editing process as much as possible.

The planning of our operations for this year's show began early in February when we reviewed all past WLW-T race shows. We screened and studied every film produced on the 500 race since 1946. Gradually, the pattern we were to follow became obvious: there wasn't much that we could do to reduce the amount of film that must be shot during the actual 500-mile race; but as the pre-race activities were pretty much the same year after year, we saw that a shooting script could be prepared and shot sheets given the various cameramen to follow as a means of reducing the shooting of excess footage. It was obvious that with this kind of preparation, shooting of pre-race events could be reduced from the usual 1,500 feet to about 500 feet, of which 300 feet would likely be used in the show.

Even with the amount of film to be edited reduced, there remained the problem of the time required to splice the shots together. For this reason, our shooting script was designed to facilitate editing in the camera. Several action sequences were outlined that could be shot as units, requiring little if any cutting and splicing—sequences such as the crowds pouring into the track, the racing cars rolling out of the pits, the celebrity parade, and the cars being rolled into starting position on the track.

We experimented with this editing-in-the-camera technique during the qualifying runs and found that with care exercised by the cameramen, it would work. Accordingly, we prepared and distributed the shot sheets.

The next project was cutting down the camera-to-editor time—a phase of the operation which has required as much as seven hours in previous years. Since the film processing time could not be shortened, our only alternative was to reduce the time required to transport the exposed film from the track to the laboratory. We employed the motorcycle pickup system, as in previous years, but arranged for three pickups instead of two. The first was scheduled to be made following the tenth lap of the race; the second at 1:00 PM, and the final pickup immediately after the end of the race which would be around 2:45 PM. According to this plan, the processed film should be ready for editing around 4:30—about two and a half hours earlier than last year.

Our film editing room was rearranged for greater efficiency and three separate editing tables provided. At the first table, the processed film was broken down according to camera locations, then checked for exposure quality and special interest of its content. At the second, where the author worked, incidentally, the film was rough-cut into tentative program sequence. The final cutting and actual splicing was done at the third table by Bill Landrum.

Racks were installed at each table on which reels of film were arranged according to camera location on the track. This expedited the locating of various shots in the editing process.

On Race Day, May 30th, fourteen cameramen were assigned to positions in and around the track: one on the outside of each turn; one on the inside of the north and south chutes; one inside the No. 4 turn; one on the backstretch; three in the pits; one roving for "color" shots; one in the tower (Landrum with the Auricon); and the author with a 16mm Bell & Howell at the control center in the tower.

Planning Paid Off

Earlier we had attempted to establish coordination between the tower and the various cameramen by means of two-way shortwave radio; but the interference induced by the ignition system of the cars plus the transmission distances involved reduced the ef-

fectiveness of the radios as much as 50%, so their use was abandoned.

Otherwise, our system this year paid off with good results. On the five-car pileup which occured on the main straightway, for example, we had three cameras covering the entire action. The tower cameraman got Davis' spin; the No. 1 Pit cameraman got Shepard's slide and collision with Cheesbourg, followed by McCluskey slamming into those two; the cameraman on the No. 1 turn got that bit of action (which was repeated on the show) plus Jack Turner's spectacular flip. The pit cameras covered the cleanup and got dramatic shots of Turner being helped as he limped away from his wrecked machine. (See reproductions of film clips).

After a short delay at the lab, the first film reached the editing room by 5:00 PM. The pre-race action and first ten laps of the race were edited by 6:30—90 minutes earlier than in any year thus far. The one difficulty we found with editing in the camera was the tendency to over-shoot. What should have been filmed in 20 seconds invariably ran 30 to 35 seconds. And because of the pressure of time, no attempt was made to shorten the over-long shots, so that the pre-race portion of the show ran two minutes longer than the eight minutes alloted.

Traffic Jam Delays Film

A hitch not expected occured in transporting the exposed film from the track to the laboratory. Because of the record crowd (325,000) and the resultant heavy traffic, the cyclist was unable to get back to the track, following his first delivery, until 1:00 PM. Because of the unprecedented traffic conditions, we decided not to risk the previously-planned second trip, and the film that was scheduled for it was held and included in the final pickup after end of the race.

This delay caused an interruption in the flow of film to the cutting room. The first part of the second lab run reached the editing room at 7:00 PM (an hour later than planned), and the remainder of the film got there about 9:00. Editing of the film was completed by 10:15, and the Race Highlights show went on the air at 10:30 PM.

Despite success of this film coverage of the Memorial Day 500-miler, we feel there is still room for improvement. WLW-I's program staff is pre



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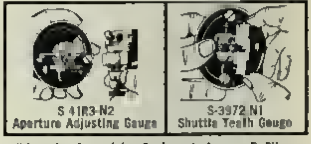
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sently re-evaluating the use of color film for this annual event, although it does pose a number of problems. With black-and-white film, processing can be done by the station's lab, and on race day all film can be processed by 6:00 PM. For filming of the pre-race events during the earlier part of the month, the daily deadline could be moved back to 4.00 PM and the program aired at an earlier hour, thus reaching a potentially larger audience.

The opinion is growing that hereafter the transporting of all exposed film to the processing lab on race day must be done by helicopter; it is the only way to beat the unbelievable race day automobile traffic. With film thus delivered to the lab more frequently, the usual last-minute jam will be avoided. Finally, we have concluded that the use of 50-foot spools of film in the cameras instead of the hundred-footers presently used, would further facilitate film pickup and processing.

This year, for the first time, there was opportunity to compare the merits of motion picture and videotape coverage of the race for television. In my opinion, the local live coverage of the event this year was commendable. But the filming method, because of its mobility factor and the ability it provides to condense action, has proved to be the most effective one for covering the many activities during the month of May in Indianapolis culminating in the big 500-mile Memorial Day race.

INDUSTRY NEWS

Continued from Page 450

MGM Acquires Share Of Panacolor, Inc.

Metro-Goldwyn-Mayer, last month purchased a substantial interest in Panacolor, Inc., which company has developed a new patented process to produce color prints for the motion picture and TV industry, as well as for educational and commercial film producers.

Earlier Panacolor purchased the building in Hollywood formerly occupied by the Motion Picture Research Council, and is constructing a laboratory there to use its process aimed at producing low-cost color prints.

The process is said to be same as MGM experimented with several years ago, but failed to pursue when the studio effected certain economies of operation.

* * *

Jet Flight Film Shows

Substantial new market for theatrical films is promised by the major airlines. Last month, TWA inaugurated screening of feature films during jet flights, showing UA's "By Love Possessed" to passengers in first-class section on initial flight under new program. Projection is by means of 16mm equipment onto a 48"x24" lenticulated screen.

Four major studios are reportedly signed with Inflight Motion Pictures, Inc., which services the airline, to supply major productions for the new exhibition program.

IATSE crews in Los Angeles, San Francisco and New York will service the projection machines, inspect the films, change reels, etc.

Sound is conveyed to individual passengers by means of lightweight earphones.

* * *

Columbia Busy Lot

With six major features now before the cameras, Columbia Pictures is presently the busiest studio in Hollywood. Production office has scheduled an additional six films to roll by mid-September. Presently shooting are "Barabbas," "Lawrence of Arabia," "Notorious Landlady," "Reach For Glory," "Five Finger Exercise," and "The Pirates of Blood River."

* * *

Lee Garmes, ASC, to Produca Films

Lee Garmes, ASC, who directed the photography of "The Big Fisherman," last month joined Ben Hecht, William Meiklejohn, Eugene Trope and Donald Liederman in the formation of 38, Inc., to produce unusual screenplays departing from the usual Hollywood formula. Unusual title of the new company is said to derive from one of its major story properties. Company offices will be in the Alan Ladd Building in Beverly Hills, Calif.

* * *

"Instant Sync" Demonstration

Magno Studios in New York last month demonstrated a new short-cut system of "instant sync" aimed at eliminating present high-cost procedures used in film and TV industries in post-synchronizing sound for films. ■

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EXPERIMENTAL FILM

Continued from Page 477

Morever, it has garnered several international awards, including the Venice Film Critics Award for 1960 plus the plaudits of such authorities as New York Times film critic Bosley Crowther, who described it as: "Dynamic . . . Endowed with raw, vibrant strength . . . fncontestably sincere!"

Other critics have managed to contain their enthusiasm, pointing out that the film's narrative frequently rambles in confused and tedious circles, and that the technical quality of sound and photography "leaves much to be desired." The controversy reaches a peak in regard to the basic premise of the film's approach—that of *improvisation*. Detractors point out that the device of improvisation is anything but new, having long been the mainstay of home-movies, as well as of Roberto Rossellini who used it with stunning impact in "Open City" and with considerably less success in "Paisan" and several subsequent efforts. Such critics are not at all certain that the art of the cinema is exalted by allowing actors to make up the plot and dialogue as they go along.

All of these criticisms have undoubted validity—and yet, "Shadows" emerges as an experience which continues to haunt the viewer long after he has left the theater. While it is, indeed, frequently confused and self-conscious in pattern, its champions maintain that so, also, is life itself, and that the aim of this film is to mirror life with its manifold irrelavencies, erratic tangents and frequent stretches of boredom, as well as its flashes of sharply focused drama. Whatever can be said on the negative side, the film has several stunning moments of truth — moments which seek neither to preach nor prove, but simply to call attention to the critical mass of emotion which frequently touches off an explosion in the lives of so-called "ordinary" people.

The picture begins, aptly enough, in confusion. The camera wanders about Manhattan nibbling at slices of life, pausing to look at one undefined character and then another. Finally, at a party, it lights on a young girl somewhat the worse for champagne. A brash young man engages her in won't-take-no-for-an-answer conversation, lures her to his apartment and seduces her. Although disillusioned by this less than idyllic experience, she nevertheless decides that she loves him, and vice versa, until he takes her home, meets her family and discovers that she is colored. His acutely painful embarrassment and withdrawal reaches a peak of dramatic intensity. And when, finally, he attempts to apologize for his shocked reaction it is already too late. The camera returns whence it came, into the boredom and loneliness of the world's most exciting city. There are no messages, no moral preachments nor anything that might be termed socially significant.

What is perhaps more interesting than pro and con arguments as to the film's technical quality are the details of how it came into being in the first place. It began as a vague idea back in 1957 when John Cassavetes was conducting a dramatic workshop in New York in a West 46th St. loft. Students attended sessions there with the object of learning as much as possible about the acting craft. They studied stage technique, but there was no place they could go to get experience in acting for the camera. Cassavetes had appeared in many films as an actor, but he was anxious to find out what things were like *behind* the camera. Other students wanted to try their hands as cameramen, sound technicians, etc., in

order to get an idea of what the technical crew was going through behind the lens while they were being temperamental in front of it.

It was decided that the actors would benefit most by improvising scenes, so there was no script nor written dialogue. The group spent three weeks discussing general theme and trying to establish characters They would also take off to make life studies in actual locales, observing bartenders, B-girls and other potential types in their natural habitats

Finally, filming got under way with a borrowed 16mm Arriflex camera synchronized with an RCA-Victor ¼-inch tape recorder. The nominal cameraman was Erich Kollmar, whose sole previous experience was gained in shooting a documentary film in Africa. However, when he could not be present, whoever happened to be handy took over the camera work The same democratic procedure applied to sound and other technical skills.

Since no dolly was available, a 6-inch telescope lens was used to make shots to take the place of what would ordinarily have been trucking shots. The results are somewhat odd on the screen. Two actors, for example, walk the length of a city block toward the camera against an unchanging background and without seeming to get any closer—almost, in fact, as if they were walking on a treadmill. The same alternative was resorted to when it was necessary to follow actors through crowds and across streets.

Most of the interiors were shot in sets constructed on the stage of the group's headquarters Some of these sets (notably the girl's apartment) appear to have been hammered together out of old orange crates, and it could be argued that a more realistic effect might have been achieved by shooting in actual locations. Lighting on the stage was no problem at all; the movie makers simply papered the ceiling with aluminum foil and screwed ordinary 150-watt household type bulbs into the sockets. The result was an overall f/4 light that softly suffused the entire set. Several interior sequences were shot in bars along Eighth Avenue, and these areas were lighted with photoflood lamps. Along the way the exposure meter became lost, and so the intrepid cameramen carried on without it, blithely estimating exposure as he went along!

A crisis was reached when the group ran out of money. Cassavetes discussed the project in an air interview with Gene Shephard on the "Night People" program Shepard appealed directly to his air audience. "There must be thousands of men and women who would like to know they could help to have a movie made," he mused wistfully, and a total of $2,500 poured in from the audience. Later a fresh appeal was made and cash arrived from people like Joshua Logan, Hedda Hopper, Jose Quintero, William Wyler, Reginald Rose, Charles Feldman, Robert Rossen and Sol Siegel. The rest of the budget of $40,000 was borrowed.

For forty-two days and nights the avid thespians trailed around New York, shooting from the neon-bright marquees of Broadway theatres and from disguised dustbins. Because they had no license to shoot in public places, they concealed the camera in subway entrances, restaurant windows and the back of trucks. They were constantly on the run to elude police because they did not have the required permit. The permit would not have been a problem had they been able to scrape up enough money to buy the required insurance.

One night they were preparing to film the brutal fight sequence which climaxes the film. They wanted to shoot in a certain alley, so they carefully went around and secured permission from all of the people in the neighborhood. They were all set up in the alley, just starting to shoot the sequence by available light. The fight no sooner started when a police car suddenly drove up, sirens blasting. Cassevetes talked his way out of that one by saying that the people in the neighborhood had given them permission to shoot. When questioned by the police, the neighbors admitted they had given such permission but had, in the meantime, changed their minds and did not want any further disturbance. The actors now had to sneak away and find another location—this time an areaway behind a bar just off Broadway. The fight as it reaches the screen is a triumph of realism, and it is amazing that actors who were not professional stunt men could have worked it out in such authentic detail without actually killing off several of the participants.

In improvisation without rehearsal or definite action pattern it would seem probable that the cameraman would go out of his mind trying to follow the actors but, surprisingly, he had no such trouble. It was discovered that the natural movement of human beings is easy

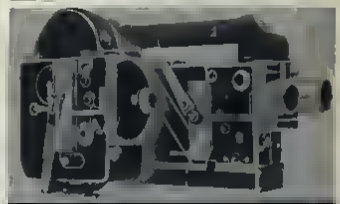
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to anticipate and to follow, whereas planned and rehearsed movement is often very difficult. Even though there were some very difficult pan shots to follow figures racing up and down streets and through Central Park, not one shot had to be re-taken.

A most unorthodox procedure of shooting was used in photographing the improvised action. Instead of shooting a master shot of a scene first and then getting closeups to match, a reverse technique was used. The actors were briefed on the general sense of the scene and the relationships were reviewd. Then the camera would move in for a closeup of one of the actors, while the others fed him lines off-screen. The cameraman would run off the entire 400 feet of film, so that the actor had an opportunity to get off his chest everything he wanted to say on the subject. Then another actor would be filmed in closeup. By the time it was necessary to shoot the master scene, the actors had the action and dialogue pretty well crystallized in their minds, had discarded much of the extraneous business and could go through the entire scene with some semblance of coherence.

Cutting all of this together with any sort of flow was something else again. The surgery took a year and a half with the editor tearing his hair out when he discovered that a character might be wearing a shirt, a coat and a sweater, each in separate scenes that had to be intercut within a sequence.

Much of the improvisation that could not be made to fit into any sort of continuity was simply discarded. The finished film was shown for the group and their friends and then put on the shelf, where it remained for a year.

Later, Cassavetes happened to be in London working on a film. A representative of the National Film Theatre who had heard about "Shadows" approached him for permission to show the picture at a seminar on experimental film. The rest, as they say, is history. Britain's top critics attended the showing, liked the film and praised it highly in the press. The result was that British Lion Films offered a sizable advance for rights to distribute the picture on a world-wide basis. After six months of legal red-tape during which all of the actors had to be contacted to sign releases and peace had to be made with the unions, the film was blown up to 35mm, an appropriately improvised jazz score by Charlie Mingus was added to the sound track, and the film was put into general release.

Meanwhile, those associated with the project have fared well. Several of the actors have landed roles and contracts as the result of being seen in the film. John Cassavetes was signed to a directorial contract at Paramount Studios where he had just completed his first assignment, "Too Late Blues," starring Bobby Darin and Stella Stevens and photographed by Lionel Lindon, A.S.C., whom Cassavetes describes as "an extremely artistic cameraman, with a tremendous amount of guts." Cassavetes leaves soon for Rome to direct Paramount's three million dollar production, "The Iron Man." Not a bad ending for a 16mm filming venture.



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BEHIND THE CAMERAS

Continued from Page 460

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